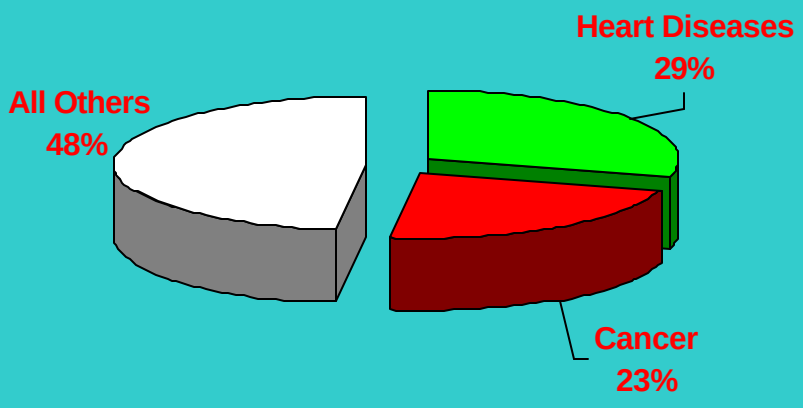
1997 Mortality Assessment
Davidson County, TN



Metropolitan Health Department of
Nashville and Davidson County, Tennessee
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Davidson County Community Health Assessment Series

No. 1 Davidson County Mortality Report 1995
No. 2 Davidson County Natality Report 1996
No. 3 The Health Status of Davidson County 1990 - 1996
No. 4 The Health Status of Davidson County's Fourteen Planning Districts 1990 - 1996
No. 5 Health Pulse Companion 1998
No. 6 Notifiable Diseases 1990 - 1997 Davidson County,Tennessee
No. 7 1997 Mortality Assessment, Davidson County, TN

1997 Mortality Assessment, Davidson County, TN

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Contents

Executive Summary

During 1997, heart diseases and cancer killed seven Davidson County residents each day, 51 residents each week, and 221 residents each month. Together, heart disease and cancer killed 2,652 residents, accounting for 52% of all deaths (5,099) that occurred during 1997.

The ten leading causes of death during 1997 were:

1. Heart Disease
2. Cancer
3. Stroke
4. Chronic Obstructive Pulmonary Disease (COPD)
5. Pneumonia and Influenza (P & I)
6. Unintentional Injuries
7. Diabetes Mellitus
8. Homicide
9. Suicide
10. Chronic Liver Disease and Cirrhosis (CLDC)
10. HIV/AIDS

Looking at the leading causes of death by age group, unintentional injuries was the leading cause of death for the age group 1-14 and the second leading cause of death for the age group 15-44. Homicide was the leading cause of death for the age group 15-24 and the second leading cause of death for the age group 25-44.

Years of Potential Life Lost (YPLL) is a measure of premature mortality. A total of 52,485 years of potential life were lost during 1997 due to premature death.

The ten leading causes of YPLL during 1997 were:

1. Cancer
2. Heart Disease
3. Unintentional Injuries
4. Homicide
5. Suicide
6. HIV/AIDS
7. Perinatal Conditions
8. Stroke
9. Congenital Anomalies
10. Diabetes Mellitus

Examining the YPLL by age group, unintentional injuries were the leading

cause of YPLL for the age group 1-14 while homicide was the leading cause of YPLL for the age groups 15-24 and 25-34.

Selected Mortality Indicators:

In Davidson County, age adjusted death rates for heart disease, cancer, stroke, unintentional injuries, HIV/AIDS, and homicide were higher among males and blacks whereas the death rate for suicide was higher among males and whites. While the death rate for COPD was almost the same among blacks and whites, the rate was higher among males.

The three most common cancers by gender were: lung, prostate, and colon cancers for males and lung, breast, and colon cancers for females.

Regardless of gender and race, lung cancer death was the most common type of cancer death. Tobacco use accounted for approximately 969 deaths in Davidson County in 1997 based on the estimate that tobacco accounts for as much as 19% of deaths in the United States.

Unintentional injuries claimed a noticieable number of productive lives (11.0%) in Davidson County; more than half (53.2%) of unintentional injury deaths occurred in the 15-54 age group.

The top three types of unintentional injuries were motor vehicle crashes, falls, and suffocation. Combined, these three accounted for more than 69.8% of unintentional injury deaths in Davidson County.

HIV/AIDS mortality rate among males was more than ten times higher than that among females, and the rate among blacks was more than eight times higher than that among whites.

Congenital anomalies, sudden infant death syndrome (SIDS), disorders resulting from short gestation and low birth weight (these two tie as the second leading cause), and other respiratory conditions were the three leading causes of infant deaths. Together, these four accounted for more than half of all infant deaths in Davidson County.

Comments:

1997 Davidson County mortality assessment data suggested that major types of mortality burden in Davidson County, TN, represented by the top three

Executive Summary (Continued)

leading causes of death, were the same as that of other metropolitan counties in Tennessee, the State of Tennessee, and the United States.

However, the magnitudes of the mortality burden were different. Major mortality indicators comparison revealed that in 1997 most of Davidson County's rates were higher than that of the United States, Tennessee, and the major metropolitan cities in the state. Long term trend analysis found that (1) from 1990 –1997 the average rates of major mortality indicators were higher than that of the United States; (2) the trend of the mortality burden was in an unfavorable direction.

The rates of all 12 major mortality indicators were higher (worse) in Davidson County than that in the nation; the rates of 10 out of 12 indicators were higher in Davidson County than the rates in the State of Tennessee (see Table 8 on page 23). This difference may partially be due to racial/ethnic disparity in this community because Davidson County is more racially and ethnically diverse than the state as a whole.

When comparing these indicators with major metropolitan cities in the state, Davidson County's data suggested an unfavorable mortality burden. The rates of six of 12 indicators in Davidson County were higher than that of Shelby County and the rates of 11 indicators were higher than that of Knox County.

Looking at the eight-year trend from 1990-1997, the average mortality rates of all 12 mortality indicators in Davidson County, TN were higher than that of the United States, ranging from 8.2% higher to 70.3% higher. In addition, the trends for cancer, stroke, P & I, homicide, suicide, and chronic liver disease and cirrhosis in Davidson County, TN differ considerably from the national trends. While the rates for these mortality indictors decreased in the nation, they increased in Davidson County, TN. For the remainder of the mortality indicators, Davidson County's dynamic of change was not favorable. In instances of mortality rate increases in both Davidson County and the nation, Davidson County's rates increased more in magnitude than did the nation (COPD and diabetes). In instances of mortality rate decreases in both Davidson County and the nation, Davidson County's rates decreased less in magnitude than did the nation (heart disease, unintentional injuries, AIDS, and infant mortality).

Mortality data tells us the severity of community health problems. The 1997 mortality assessment should serve as a wake-up call for the residents of Davidson County. The mortality burden has negative impact on residents' quality of life. Reducing the mortality burden and improving residents' health takes the efforts of the entire community. The improvement of residents' quality of life will not be realized unless we all act to reduce the mortality burden in Davidson County, TN.

Acknowledgements

Overall responsibility for preparing this report rested with the Division of Assessment and Surveillance, Bureau of Health Assessment and Evaluation under the general direction of Mr. Bart N. Perkey, Director of the Bureau. Ms. Nancy Honer of the Division of the Assessment and Surveillance was involved in part of the data preparation. The principal author was Dr. Jianshi Huang.

We are greatly indebted to the following persons who gave their time, knowledge, and assistance. Mr. Bart Perkey, Dr. Tony Chapdelaine, Ms. Nancy Horner, Mr. Burns Rogers reviewed the manuscript. Ms. Rhonda Brooks proofread the manuscript. Mr. Tom Spillman of Tennessee Department of Health kindly provided data support to this project.

Lists of Figures and Tables

Figure (Page number is in parenthesis)

Lists of Figures and Tables (Continued)

Figure (Page number is in parenthesis)

Table (Page number is in parenthesis)

Lists of Maps and Data Tables

Map (Page number is in parenthesis)

Data Table (Page number is in parenthesis)

Introduction

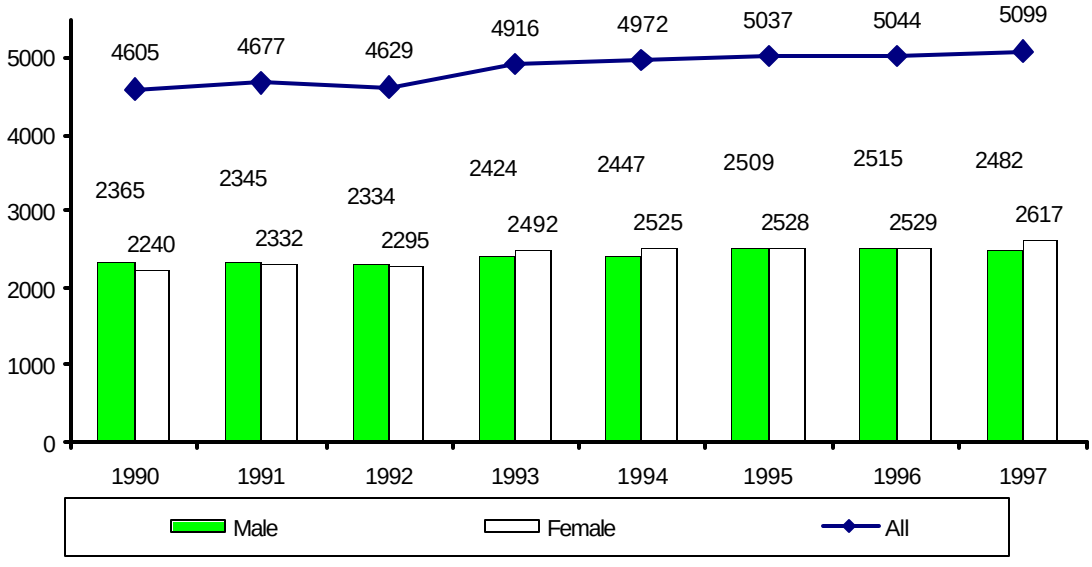
Death is one of the most important events in the human population. Risk of death is a major community health issue. Mortality data provide useful information regarding the severity of a community's health problems. They can also be an index of the risk of diseases when the disease is lethal and survival of a disease is short. (1) For these reasons, we present the following assessment of 1997 mortality for residents of Nashville and Davidson County, TN.[1] .

The results of the mortality assessment are organized as follows:

1. Overview
2. Leading causes of death
3. Years of potential life lost
4. Selected mortality indicators

During 1990-1997, on average, death numbers increased 1.5% each year while the estimated population increased 0.6% annually.

Figure 1. Number of Deaths by Gender, Davidson County, TN, 1990-1997



1. In the remainder of the report, we will refer to "Nashville and Davidson County, TN" as "Davidson County, TN."

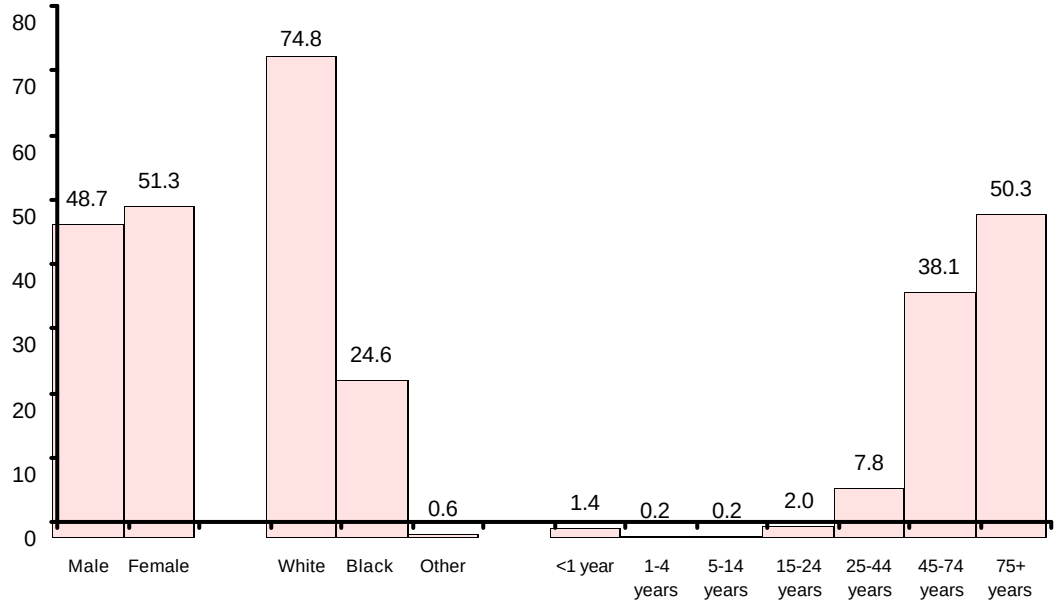
Overview

In 1997, 5,099 deaths occurred among residents of Davidson County, TN. Of these 5,099 deaths, 2,482 (48.7%) were males and 2,617 (51.3%) were females. Whites account for 74.8% of deaths, blacks account for 24.6% of deaths, and others 0.6%. More deaths (50.3%) occurred in persons who were 75 years of age or above, however, nearly half (45.9 %) of deaths occurred in persons between the ages of 25-74 years. (Figure 2) More males than females (62.0% versus 38.0%), and more blacks than whites (63.2 % versus 45.1%) died at earlier ages (before 75 years). (Figure 3)

The crude mortality rate was 955.4 per 100,000 persons for all causes of deaths, 979.7 per 100,000 for whites, and 941.2 per 100,000 for blacks. The age adjusted (to 1940 US population) mortality rates were 595.4 per 100,000 persons for the total population, 526.1 per 100,000 for whites and 866.8 for blacks. (Figure 4)

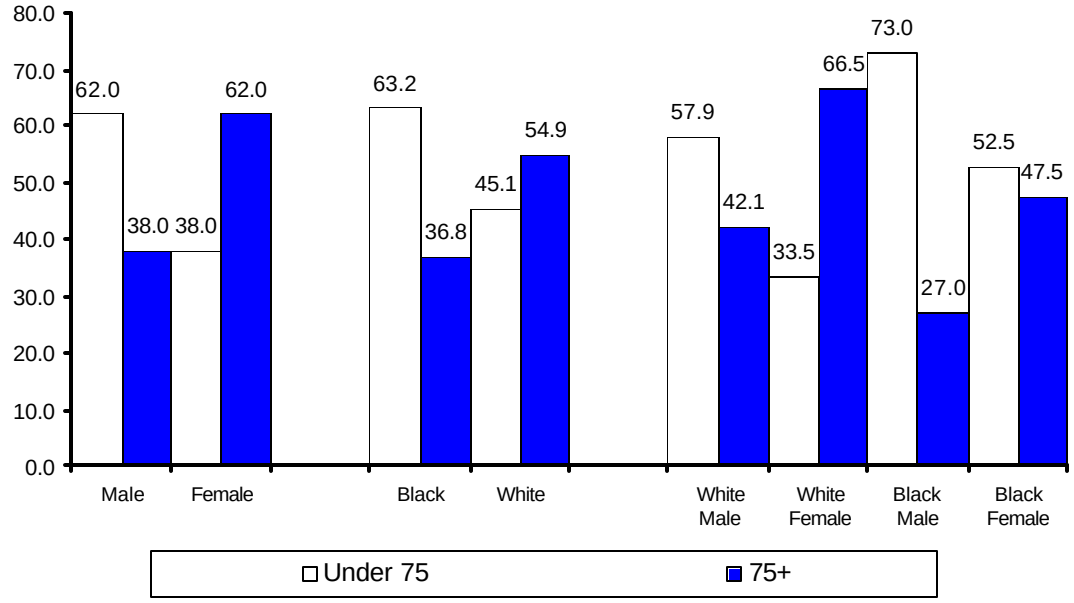
50.3% of deaths occurred in persons who were 75+ while 45.9 % of deaths occurred in persons between 25-74 years of age.

Figure 2. Gender, Race, and Age Distribution (%) of Deaths, Davidson County, TN, 1997



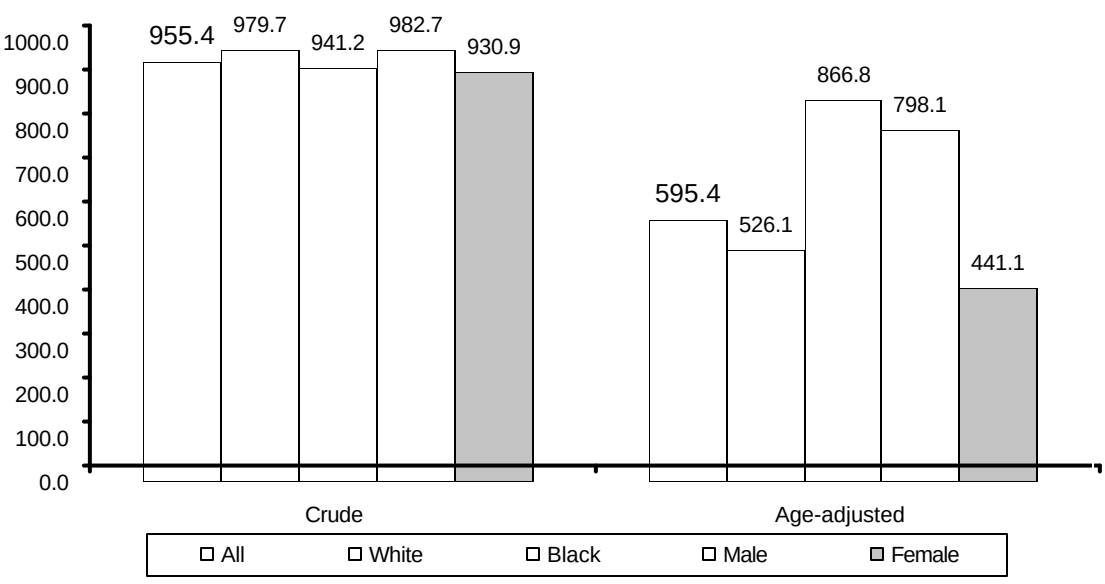
More males than females and more blacks than whites died before 75 years of age.

Figure 3. Percentage of Death by Age Group, Davidson County, TN, 1997



In 1997, Davidson County males had a higher age adjusted rate of death than females, and blacks had a higher rate of death than whites.

Figure 4. Crude Death Rate/100,000 Persons and Age Adjusted Death Rate/100,000 Persons, Davidson County, TN, 1997

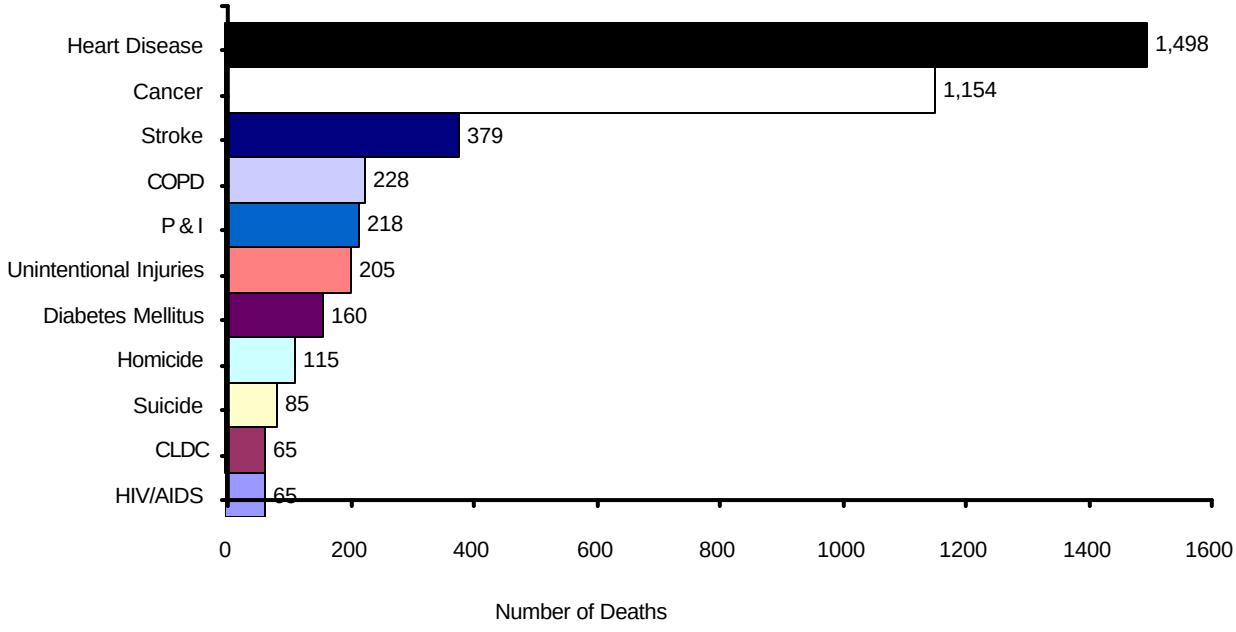


Leading Causes of Death

Leading causes of death are identified by ranking causes according to the number of deaths (not rates). (2) This is an indicator of the severity of specific health problems in a population. The ten leading causes of death in 1997 in Davidson County, TN (Figure 5) were:

1. Heart Disease
2. Cancer
3. Stroke
4. Chronic Obstructive Pulmonary Disease (COPD)
5. Pneumonia and Influenza (P & I)
6. Unintentional Injuries
7. Diabetes Mellitus
8. Homicide
9. Suicide
10. Chronic Liver Diseases and Cirrhosis (CLDC)
10. HIV/AIDS

Figure 5. Leading Causes of Death, Davidson County, TN, 1997



The three leading causes of death in Davidson County, TN were the same as that of other metroplitan counties in Tennessee, the State of Tennessee, and the United States. They were heart disease, cancer, and stroke. (Table 1)

Table 1. Five Leading Causes of Death, Davidson County, TN, Shelby County, TN, Knox County, TN, State of Tennessee, the United States, 1997

Rank	Davidson County, TN	Shelby County, TN	Knox County, TN	State of Tennessee	United States
1	Heart Disease 1,498	Heart Disease 2,473	Heart Disease 972	Heart Disease 16,540	Heart Disease 725,790
2	Cancer 1,154	Cancer 1,717	Cancer 785	Cancer 11,872	Cancer 537,390
3	Stroke 379	Stroke 630	Stroke 233	Stroke 4,110	Stroke 159,877
4	COPD 228	Unintentional Injuries 352	COPD 176	COPD 2,473	COPD 110,637
5	Pneumonia and Influenza 218	Pneumonia and Influenza 335	Unintentional Injuries 127	Unintentional Injuries 2,450	Unintentional Injuries 92,191

COPD: Chronic Obstructive Pulmonary Disease
Numbers under causes represent number of deaths
Data sources:Tennessee Department of Health, US National Center for Health Statistics

In Davidson County, TN nearly one in three people who died in 1997, died of heart disease, and one in four died of cancer. Together, these two caused more deaths in Davidson County, TN than all other diseases and conditions combined. (Figure 6)

When we examined the death pattern by gender and race, it was clear that heart disease, cancer, and stroke were the top three killers in Davidson County, TN regardless of gender and race. (Figure 7)

Table 2 on page 7 shows the five leading causes of death by gender and race in 1997.

Figure 6. Percentage of Causes of Death, Davidson County, TN., 1997

In Davidson County, TN, heart disease and cancer killed more people than all other diseases and conditions combined.

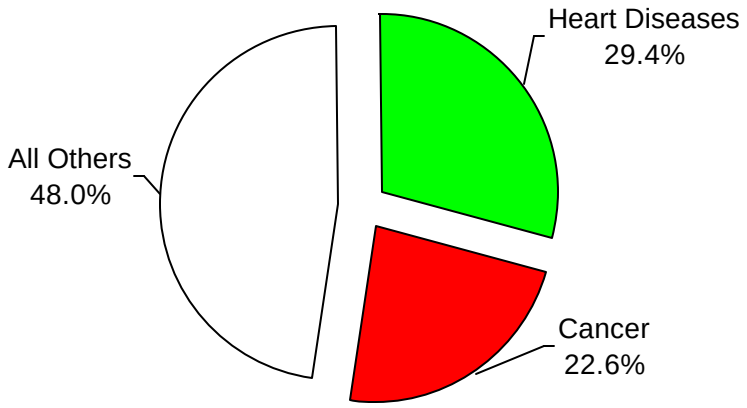


Figure 7. Number of Deaths, Three Leading Cuases of Death by Gender and Race, Davidson County, TN, 1997

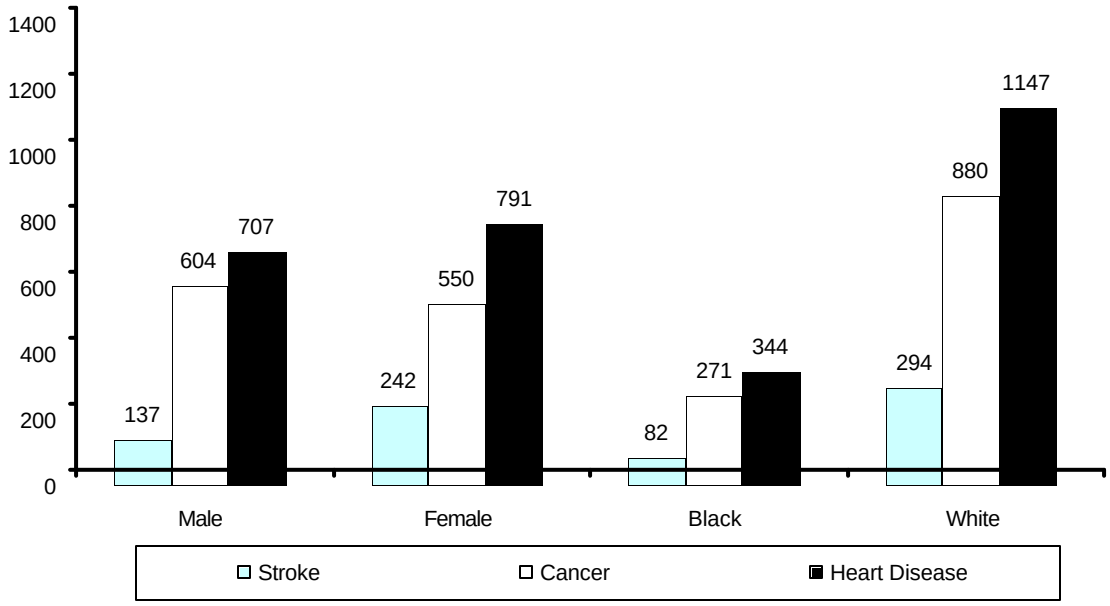


Table 2. Five Leading Causes of Death by Gender and Race, Davidson County, TN, 1997

Rank	Male	Female	Black	White
1	Heart Disease 707	Heart Disease 791	Heart Disease 344	Heart Disease 1,147
2	Cancer 604	Cancer 550	Cancer 271	Cancer 880
3	Stroke 137	Stroke 242	Stroke 82	Stroke 294
4	Unintentional Injuries 131	Pnuemonia & Influenza 152	Pnuemonia & Influenza 64	COPD 195
5	COPD 102	COPD 126	Homicide 62	Pnuemonia & Influenza 154

COPD: Chronic Obstructive Pulmanary Diseases
Numbers under causes represent number of deaths

Looking at the leading causes of death by age group, unintentional **injuries was the leading cause of death for the age group 1-14 and the second leading cause of death for the age group 15-44. Homicide was the leading cause of death for the age group 15-24 and the second leading cause of death for the age group 25-44 (homicide, cancer, and unintentional injuries tied for the second leading cause of death in the age group 25-44).**

Table 3 shows the five leading causes of death by age groups.

Unintentional injuries was the number one killer for the age group 1-14 while homicide was the number one killer for the age group 15-24.

Table 3. Five Leading Causes of Death by Age Groups, Davidson County, TN, 1997

Age/ Rank	1	2	3	4	5
<1	Congenital Anomalies 14	Disorder: Short Gestation/ Unspecified Low Birth Weight, Sudden Infant Death Syndrome 9	Other Respiratory Condition 5	Unintentional Injuries, Respiratory Distress Syndrome 4	Homicide, P & I, Complications of Placenta, Cord, Membranes 2
1-4	Unintentional Injuries 4	Congenital Anomalies, Heart Disease 1			
5-14	Unintentional Injuries 5	Heart Disease 3	Meningococal Infection, Suicide 1		
15-24	Homicide 40	Unintentional Injuries 33	Suicide 12	Cancer 3	Congenital Anomalies 2
25-44	Heart Disease 55	Homicide, Cancer, Unintentional Injuries 52	HIV/AIDS 48	Suicide 41	Chronic Liver Disease & Cirrhosis 13
45-64	Cancer 338	Heart Disease 271	Stroke 47	Unintentional Injuries 37	Diabetes Melitus 34
65+	Heart Disease 1,165	Cancer 761	Stroke 324	COPD 194	P & I 190

COPD: Chronic Obstructive Pulmonary Disease
P & I: Pneumonia and Influenza
Numbers under causes represent number of deaths

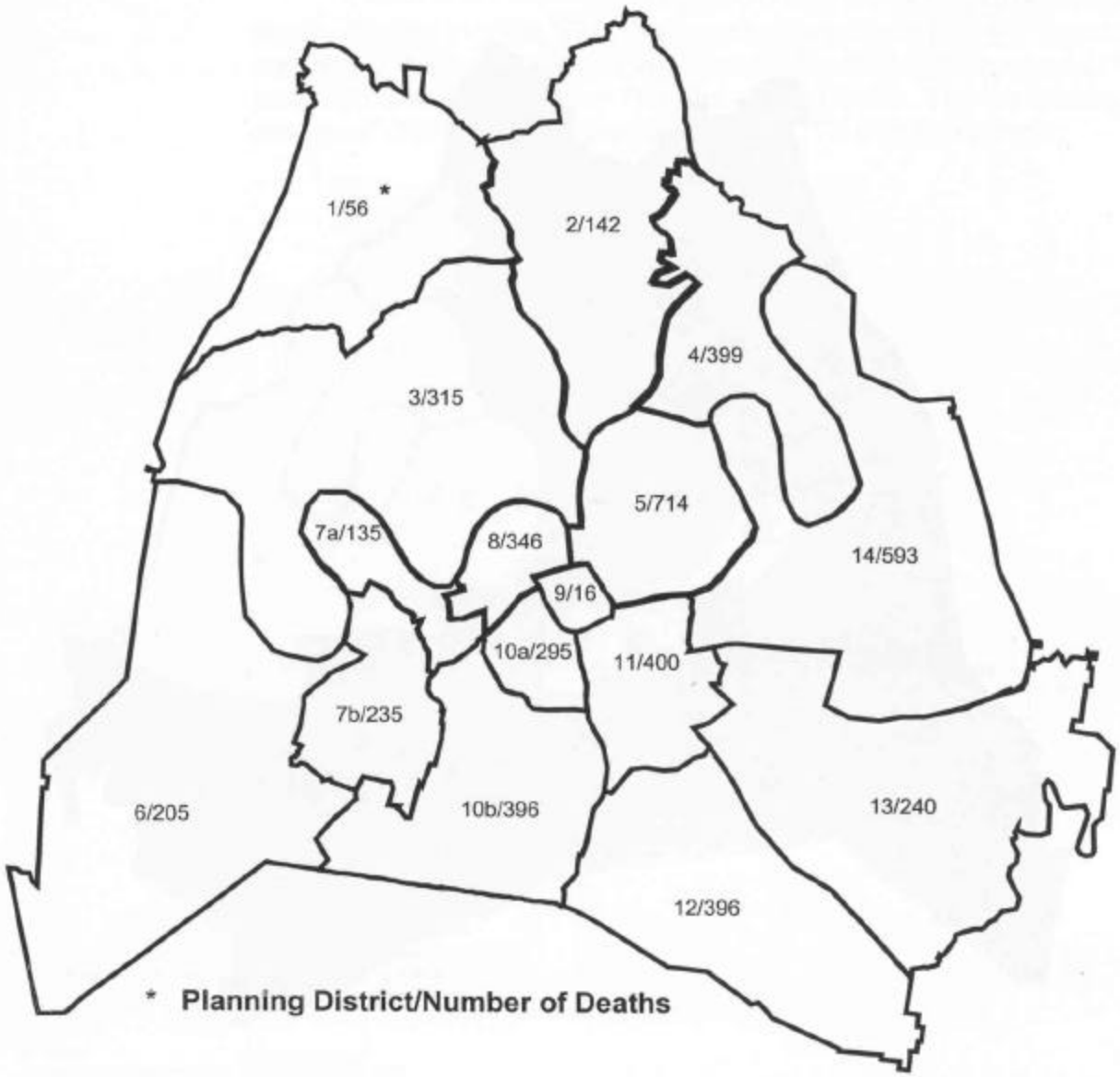
When examining the leading causes of death by planning district, it is clear that heart diseases, cancer, and stroke were the top three killers in most planning districts. (Table 4, Map 1) Planning districts 1, 3, 8, 10b, and 11 had the highest crude death rate for all causes of death. (Map 2) Since death numbers in some planning districts were very small, interpretation should be with caution.

Table 4. Five Leading Causes of Death by Planning District, Davidson County, TN, 1997

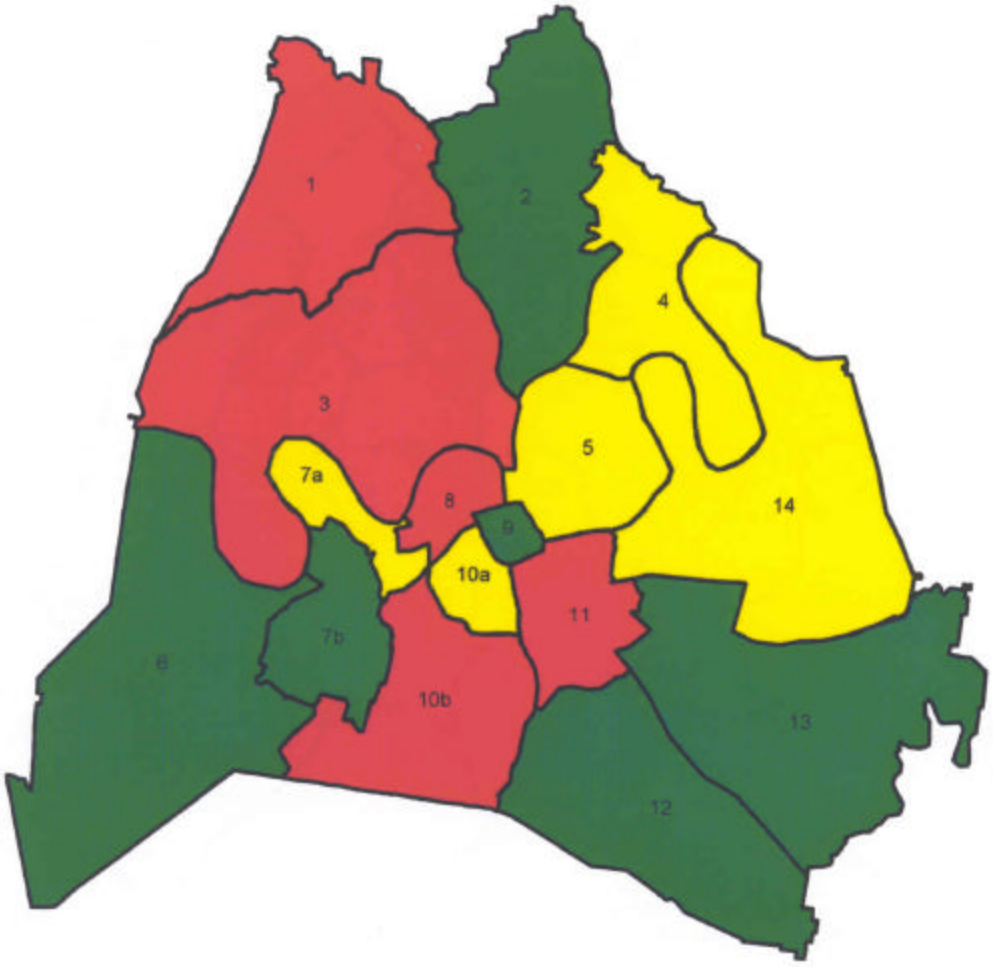
Rank/ PD	1	2	3	4	5
PD1	Heart Disease 23	Cancer 11	Stroke/P & I 4	Chronic Liver Disease 1	
PD2	Heart Disease 46	Cancer 37	Stroke 8	Unintentional Injuries/ COPD 6	Suicide 4
PD3	Heart Disease 103	Cancer 66	Stroke 24	Diabetes 17	COPD/ P & I 12
PD4	Heart Disease 116	Cancer 71	Stroke 33	Unintentional Injuries 22	COPD/ P & I 21
PD5	Heart Disease 214	Cancer 170	Stroke 52	COPD 29	Homicide 25
PD6	Cancer 63	Heart Disease 49	Stroke 16	COPD 13	P & I 7
PD7a	Heart Disease 41	Cancer 34	COPD 7	Stroke/ P & I 6	Unintentional Injuries/ Diabetes 4
PD7b	Heart Disease 78	Cancer 67	Stroke 13	P & I 10	COPD 9
PD8	Heart Disease 93	Cancer 81	Stroke 23	Diabetes 21	P & I 17
PD9	Cancer 4	Heart Disease 3	Homicide/ HIV/AIDS 2	Stroke/ Suicide 1	
PD10a	Heart Disease 76	Cancer 56	Stroke 29	P & I 20	Unintentional Injuries 12
PD10b	Heart Disease 127	Cancer 75	Stroke 42	COPD/ P & I 22	Unintentional Injuries 15
PD11	Heart Disease 114	Cancer 85	Stroke/ COPD 27	P & I 23	Diabetes 16
PD12	Heart Disease 130	Cancer 80	Unintentional Injuries 26	Stroke 23	COPD 21
PD13	Cancer 72	Heart Disease 57	Unintentional Injuries 18	COPD 8	Homicide 7
PD14	Heart Disease 167	Cancer 145	Stroke 55	Unintentional Injuries 24	COPD/ P & I 21

COPD: Chronic Obstructive Pulmonary Disease
P & I: Pneumonia and Influenza
Numbers under cause represent number of deaths

Map 1. Number of Deaths by Planning Districts, Davidson County, TN, 1997



Map 2. All Causes Crude Death Rates by Planning Districts, Davidson County, TN, 1997



All Causes Crude Death Rate/100,000

1,089 to 1,420	(5)
972 to 1,089	(5)
502 to 972	(6)

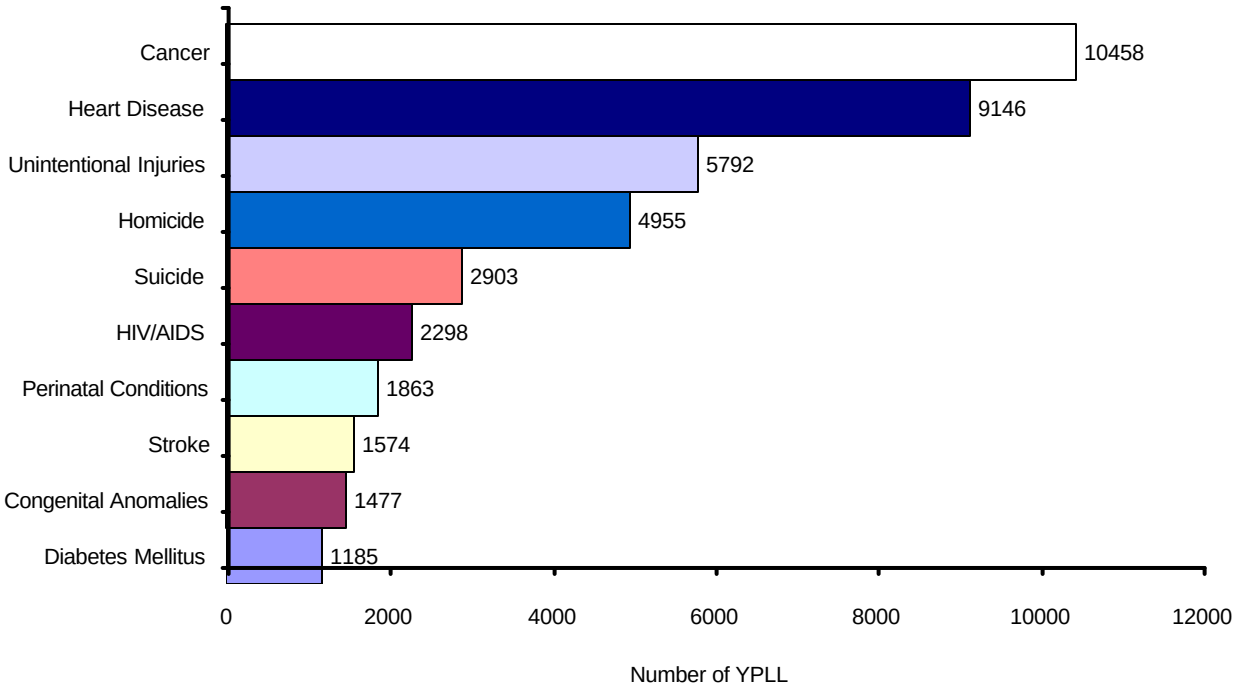
Number in parenthesis represents number of planning districts in this rate range

Years of Potential Life Lost

Years of Potential Life Lost (YPLL) is a measure of premature death. Starting in 1996, YPLL is presented for persons under 75 years of age because the average life expectancy in the United States is over 75 years. (2) Therefore, YPLL = 75 years - age at death. The ten leading causes of YPLL in 1997 in Davidson County, TN (Figure 8) were:

1. Cancer
2. Heart Disease
3. Unintentional Injuries
4. Homicide
5. Suicide
6. HIV/AIDS
7. Perinatal Conditions
8. Stroke
9. Congenital Anomalies
10. Diabetes Mellitus

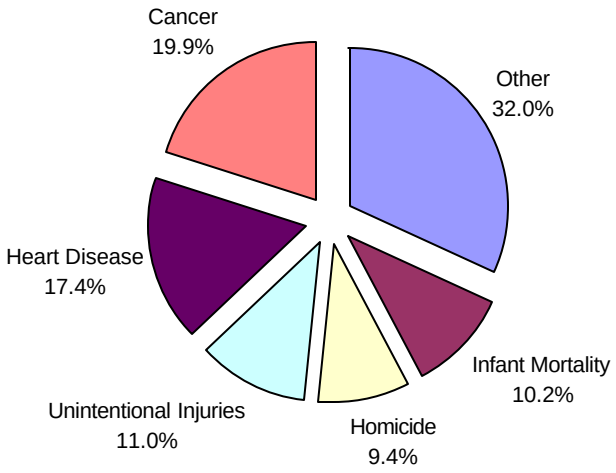
Figure 8. Leading Cuases of YPLL, Davidson County, TN, 1997



From Figure 9, we can see that cancer was the single largest contributor to the YPLL in 1997, accounting for 19.9% of total YPLL. Heart disease was the second largest contributor, accounting for 17.4% of total YPLL. Unintentional injuries accounted for 11.0% of total YPLL and homicide accounted for 9.4 % of YPLL. It is noted that infant mortality was also a significant contributor to premature death in Davidson County, TN in 1997, accounting for approximately 10.2% of the total Years of Potential Life Lost .

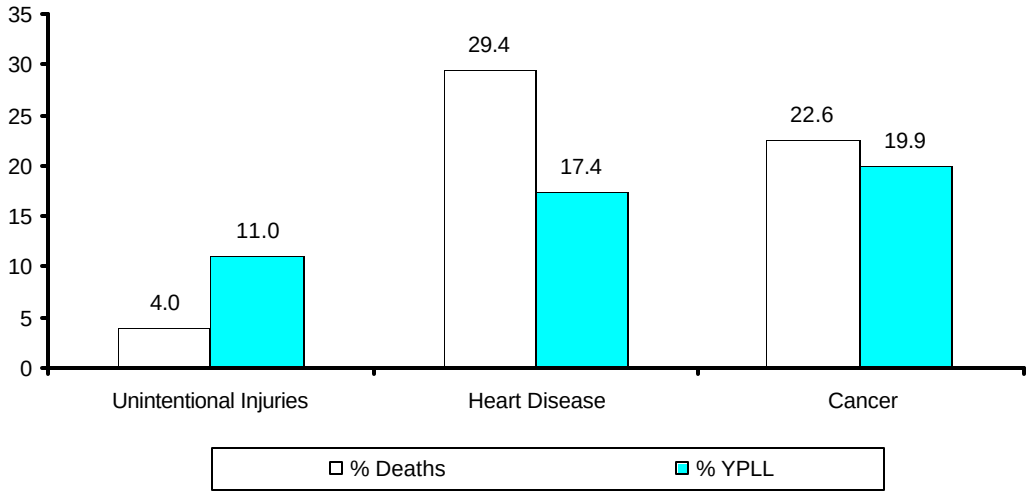
Figure 9. Percent of YPLL Attributable to Different Causes, Davidson County, TN, 1997

Unintentional injuries accounted for 11.0% of total YPLL and homicide accounted for 9.4 % of YPLL.



If we compare the percentage of total YPLL for the three leading causes of YPLL with the percentage of total number of deaths for these three causes, unintentional injuries accounts for 11.0 % of total YPLL and only 4.0% of total deaths. While heart diseases accounts for 17.4% of total YPLL, it accounts for 29.4% of total deaths. Cancer accounts for 19.9% of YPLL and 22.6% of total deaths. (Figure 10)

Figure 10. Percentage of Total Deaths and Percentage of YPLL for Three Leading Causes of YPLL, Davidson County, TN, 1997



Unintentional injuries accounted for 11.0 % of total YPLL and only 4.0% of total deaths.

While the three leading causes of death were the same regardless of gender and race, the three leading causes of YPLL were different among races and genders. (Table 5)

Table 5. Five Leading Causes of YPLL by Gender and Race, Davidson County, TN,1997

Rank	Male	Female	Black	White
1	Heart Disease 6,422	Cancer 4,592	Cancer 3,090	Cancer 7,307
2	Cancer 5,866	Heart Disease 2,725	Homicide 2,840	Heart Disease 6,313
3	Unintentional Injuries 4,438	Unintentional Injuries 1,355	Heart Disease 2,782	Unintentional Injuries 3,570
4	Homicide 4,317	Perinatal Conditions 894	Unintentional Injuries 2,223	Suicide 2,362
5	Suicide 2,442	Stroke 755	HIV/AIDS 1,709	Homicide 1,923

Numbers under causes represent number of deaths

If we examine the leading causes of YPLL by age group, congenital anomalies was the leading cause of YPLL for infants. While unintentional injuries was the leading cause of YPLL for the age group 1-14, homicide was the leading cause of YPLL for the age group 15-24, and in the 25-34 age group homicide and unintentional injuries tied for the leading cause of YPLL. (Table 6)

When examining the leading causes of YPLL by planning district, cancer was the leading cause of YPLL in 11 of 16 planning districts. Heart disease was the leading cause of YPLL in only four planning districts. Homicide and unintentional injuries, however, were both among the top three causes of YPLL in 7 out of 16 planning districts respectively. (Table 7, Map 3) Planning districts 5, 7a, 8, and 11 had the highest YPLL rate per 100,000 persons in Davidson County, TN. (Map 4) Since numbers in some planning districts were small, interpretation should be with caution.

While unintentional injuries was the leading cause of YPLL for the age group 1-14, homicide was the leading cause of YPLL for the age groups 15-24 and 25-34.

Table 6. Five Leading Causes of YPLL by Age Groups, Davidson County, TN, 1997

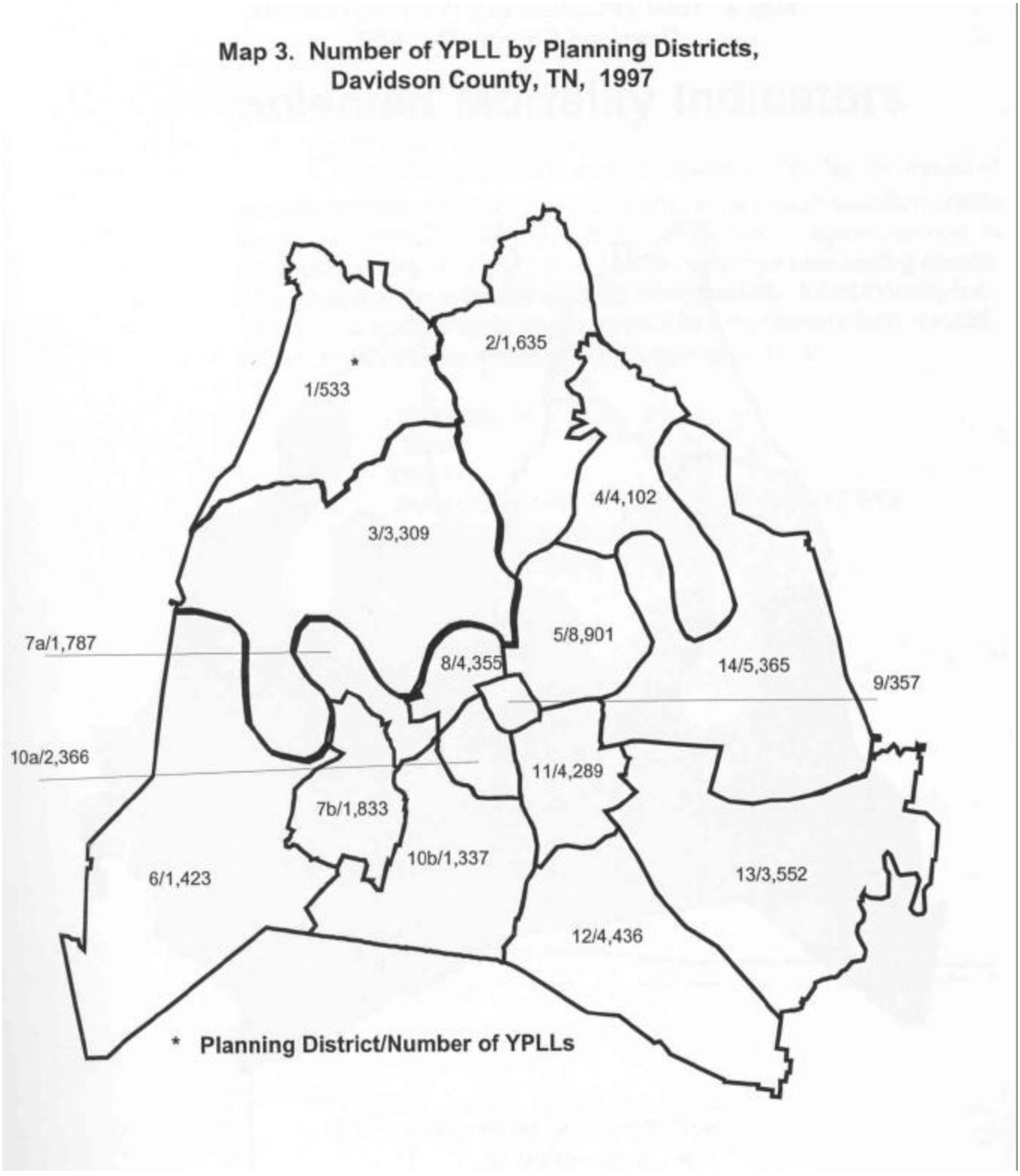
Age/ Rank	1	2	3	4	5
<1	Congenital Anomalies 1,043	Disorder: Short Gestation/ Unspecified Low Birth Weight, Sudden Infant Death Syndrome 671	Other Respiratory Condition 373	Unintentional Injuries, Respiratory Distress Syndrome 298	Homicide, Pneumonia & Influenza, Complications of Placenta, Cord, Membranes 149
1-14	Unintentional Injuries 608	Heart Disease 270	Congenital Anomalies, Meningococal Infection, Suicide 68		
15-24	Homicide 2,220	Unintentional Injuries 1,832	Suicide 666	Cancer 167	Congenital Anomalies 111
25-34	Homicide, Unintentional Injuries 1,274	Suicide 1,047	HIV/AIDS 1,001	Cancer 683	Heart Disease 410
35-44	Heart Disease 1,669	Cancer 1,314	HIV/AIDS 923	Unintentional Injuries Homicide 852	Suicide 639
45-54	Cancer 3,136	Heart Disease 2,499	Unintentional Injuries 612	Stroke 459	Chronic Liver Disease 408
55-64	Cancer 3,333	Heart Disease 2,682	Stroke 450	Diabetes Mellitus 403	COPD 341
65-74	Cancer 1,826	Heart Disease 1,468	COPD 407	Stroke 303	Diabetes Mellitus 193

COPD: Chronic Obstructive Pulmonary Disease
Numbers under causes represent years of potential life lost

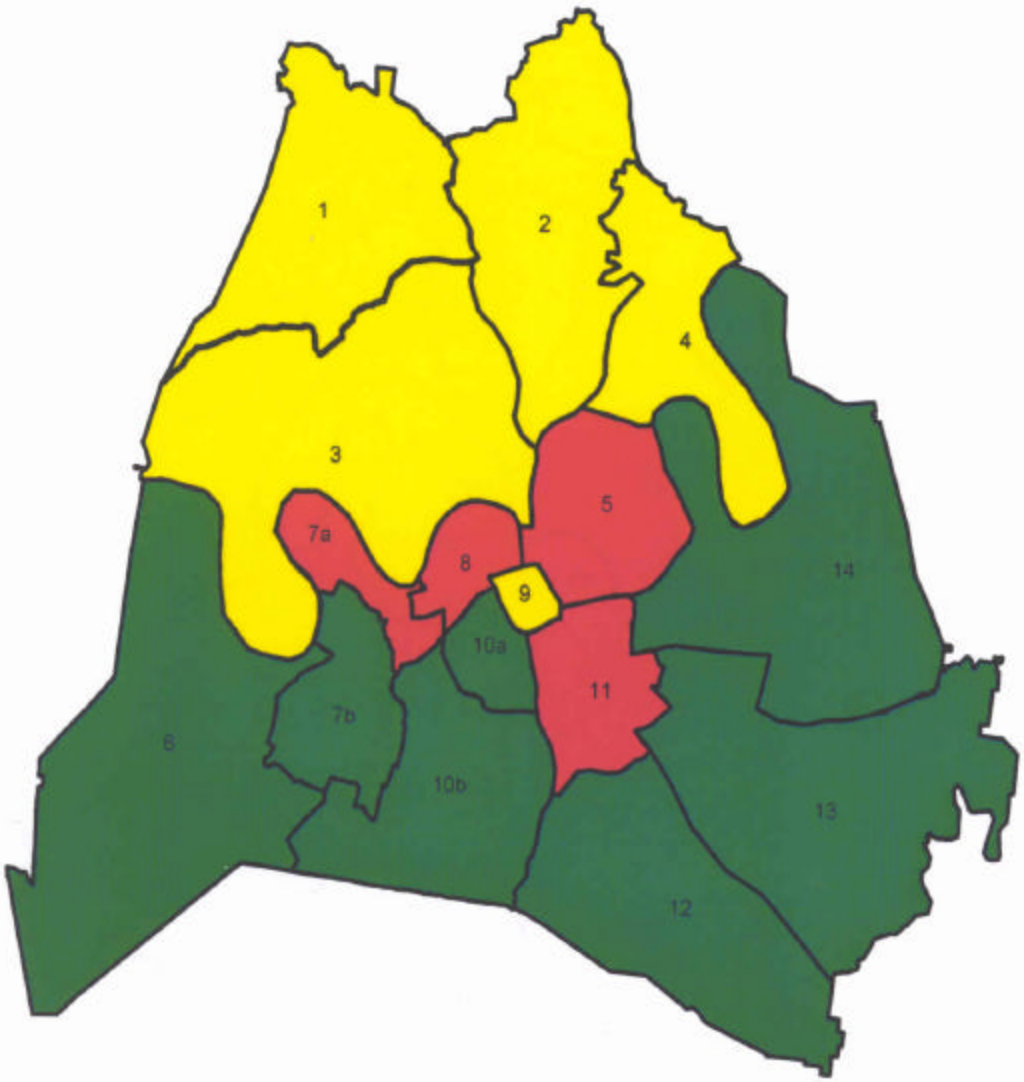
Table 7. Five Leading Causes of YPLL by Planning Districts, Davidson County, TN, 1997

PD/ Rank	1	2	3	4	5
PD1	Heart Disease 165	Cancer 109	Stroke 26	P & I 21	Chronic Liver Disease 16
PD2	Cancer 333	Heart Disease 306	Homicide 137	Suicide 132	Unintentional Injuries 92
PD3	Heart Disease 616	Cancer 556	Homicide 370	Unintentional Injuries 296	Stroke 238
PD4	Heart Disease 938	Cancer 786	Unintentional Injuries 474	Suicide 345	Homicide 263
PD5	Cancer 1,772	Heart Disease 1,522	Homicide 1,088	Unintentional Injuries 673	HIV/AIDS 654
PD6	Cancer 442	Heart Disease 234	Unintentional Injuries 181	HIV/AIDS 71	Chronic Liver Disease & Cirrhosis 61
PD7a	Cancer 422	Heart Disease 300	HIV/AIDS 188	Unintentional Injuries 122	Homicide 90
PD7b	Cancer 489	Heart Disease 452	Homicide 172	Unintentional Injuries 162	Suicide 118
PD8	Cancer 881	Homicide 683	Heart Disease 593	HIV/AIDS 421	COPD 191
PD9	Heart Disease 77	HIV/AIDS 71	Homicide 61	Cancer 27	Suicide 26
PD10a	Cancer 396	Heart Disease 349	Homicide 294	Unintentional Injuries 249	HIV/AIDS 173
PD10b	Cancer 382	Heart Disease 262	Unintentional Injuries 189	Homicide 120	COPD 73
PD11	Cancer 722	Heart Disease 704	Unintentional Injuries 510	Suicide 447	Homicide 334
PD12	Unintentional Injuries 885	Cancer 767	Heart Disease 738	Suicide 244	Homicide 237
PD13	Cancer 802	Unintentional Injuries 630	Heart Disease 438	Homicide 339	Suicide 253
PD14	Cancer 1,168	Heart Disease 991	Unintentional Injuries 702	Homicide 481	Suicide 274

COPD: Chronic Obstructive Pulmonary Disease
P & I: Pneumonia and Influenza
Numbers under causes represent years of potential life lost


Map 3. Number of YPLL by Planning Districts,
Davidson County, TN, 1997
1/533
2/1,635
3/3,309
4/4,102
5/8,901
6/1,423
7a/1,787
7b/1,833
8/4,355
9/357
10a/2,366
10b/1,337
11/4,289
12/4,436
13/3,552
14/5,365
* Planning District/Number of YPLLs

Map 4. Total YPLL Rates by Planning Districts,
Davidson County, TN, 1997



Total YPLL Rate/100,000 Persons <75

- 13,700 to 19,200 (4)
- 9,300 to 13,700 (5)
- 4,000 to 9,300 (7)

Number in parenthesis represents number of planning districts in this rate range

Selected Mortality Indicators

Cause-specific mortality measures the health impact of specific diseases and conditions in a community while age-specific mortality provides information regarding health impact on specific age subgroups. In this report, we examine the cause-specific mortality for ten leading causes of death and one age-specific mortality, infant mortality. Infant mortality is a commonly used community health indicator for a population's level of social and economic development and health care system. (3)

1. Heart Disease
2. Cancer
3. Stroke
4. Chronic Obstructive Pulmonary Disease (COPD)
5. Pneumonia and Influenza (P& I)
6. Unintentional Injuries
7. Diabetes Mellitus
8. Homicide
9. Suicide
10. Chronic Liver Diseases and Cirrhosis (CLDC)
11. HIV/AIDS
12. Infant Mortality

Figure 11. Top Five Leading Causes of Death, Age Adjusted Rate/100,000 Persons, Davidson County, TN, 1990-1997

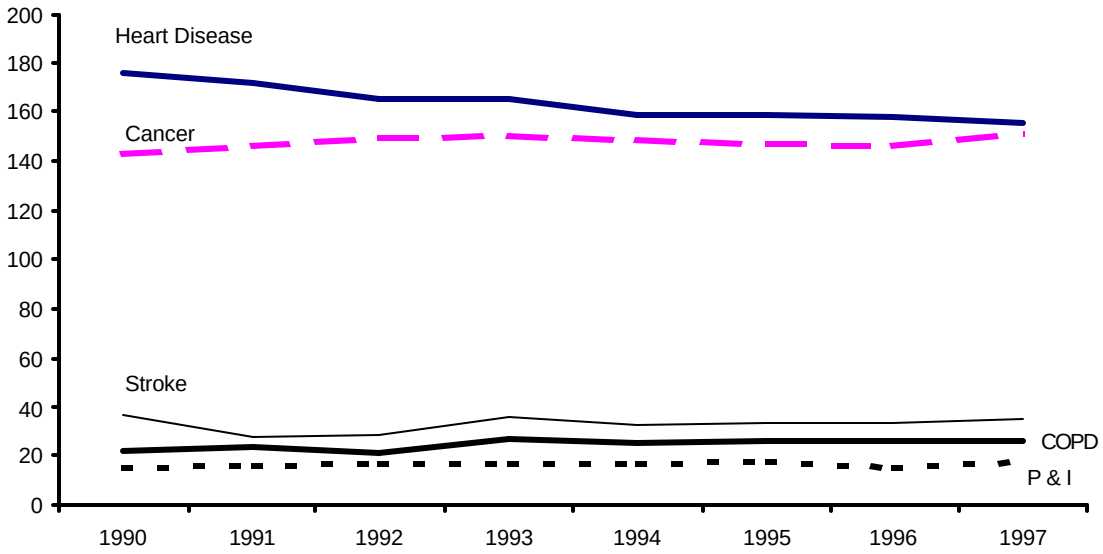
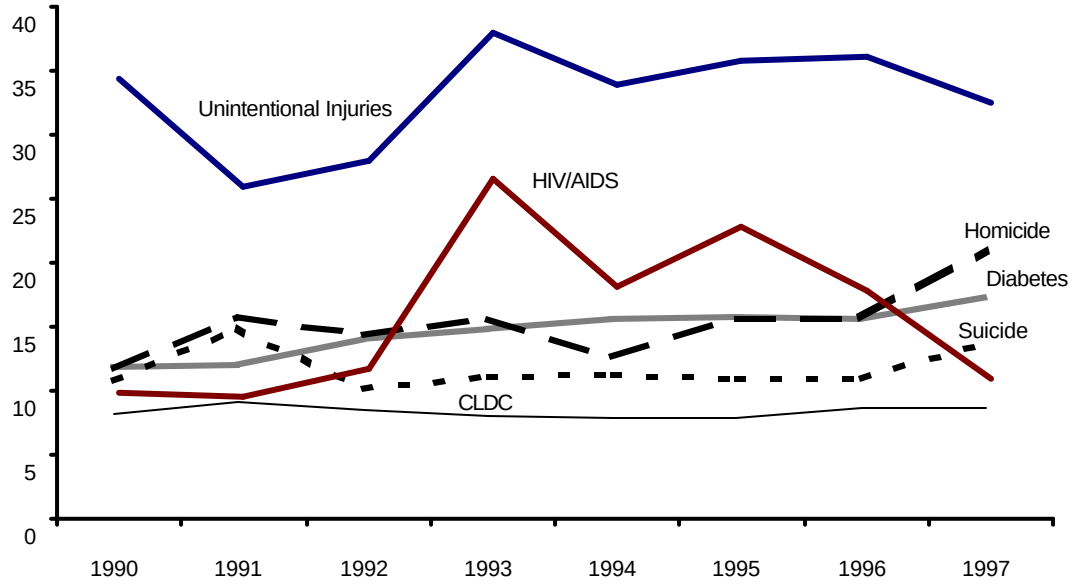


Figure 11 shows mortality patterns for the top five leading causes of deaths in Davidson County, TN. While the cancer age adjusted mortality rate revealed a gradually increasing trend, the heart disease mortality rate demonstrated a slightly decreasing trend during 1990-1997. However, heart disease was still the number one killer in Davidson County, TN. Although stroke, COPD, and P & I mortality rates exhibited different fluctuation patterns, all three causes of deaths showed an increasing trend during this eight-year period.

Figure 12 shows age adjusted mortality rates for the next six leading causes of deaths. HIV/AIDS mortality rate increased sharply in 1993, followed by a remarkable decrease. By contrast, homicide and diabetes mellitus mortality rates had gradual increases. While unintentional injuries mortality rate experienced a peak in 1993, it started to decrease in subsequent years. The suicide mortality rate reached its peak in 1991, dropped to its lowest point in 1992, maintained the low level for four years, and increased remarkably in 1997. Chronic liver disease and cirrhosis mortality rate peaked in 1991, decreased gradually for four years, and increased again begining in 1995.

Figure 12. Next Six Leading Causes of Death, Age Adjusted Rate/100,000 Persons, Davidson County, TN, 1990-1997



While the infant mortality rate in Tennessee experienced a steady decrease, the infant mortality rate in Davidson County fluctuated during the last eight years. After a peak rate of 12.0 per 1,000 live births in 1993, Davidson County observed a continuous decline of infant mortality rate untill 1996. An increase of the infant mortality rate in 1997 reversed a three-year declining trend. (Figure 13)

Figure 13. Infant Mortality Rate/1,000 Live Births, Davidson County, TN and State of Tennessee, 1990-1997

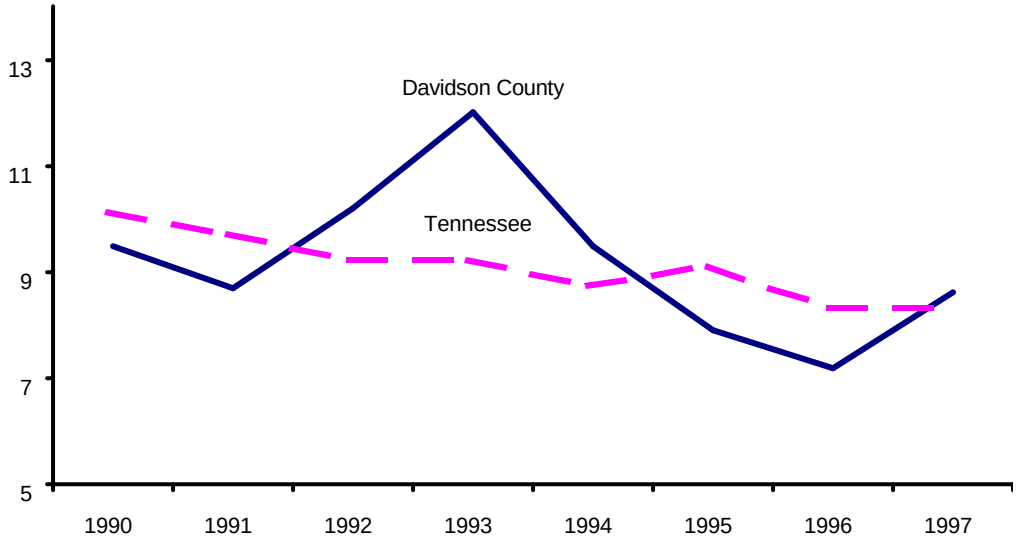


Table 8 on the next page summarizes the twelve selected mortality indicators in Davidson County, TN. For comparison purposes, age adjusted mortality rates for the same year for two metropolitan counties in Tennessee, the State of Tennessee, and the United States are included. The National Year 2000 Objectives, if available, are also included. A detailed discussion for each of these twelve mortality indicators follows.

Table 8. Selected Age Adjusted Mortality Rates and Infant Mortality Rate, Davidson County, Shelby County, Knox County, Tennessee, the United States, 1997 and National Year 2000 Objectives

	Davidson County, TN	Shelby County, TN	Knox County, TN	State of Tennessee	United States	Year 2000 Objective
Heart Disease	155.7	175.4	129.7	152.1	129.9	100.0*
Cancer	151.5	146.5	129.1	137.2	125.0	130.0
Stroke	34.5	42.8	28.5	33.3	25.9	20.0
COPD	25.7	22.5	24.8	24.7	21.4	25.0
P & I	18.1	20.2	12.3	15.5	13.2	11.5
Unintentional Injuries	32.5	36.0	27.0	39.4	28.9	29.3
Diabetes Mellitus	18.7	13.4	13.3	13.6	13.4	34.0**
Homicide	22.3	19.7	9.4	10.9	7.5	7.2
Suicide	15.2	10.9	12.0	13.0	10.3	10.5
CLDC	10.0	8.2	9.7	8.3	7.2	6.0
HIV/AIDS	11.0	14.9	2.4	5.2	5.9	n/a
Infant Mortality	8.6	12.3	7.5	8.5	7.2	7.0

COPD: Chronic Obstructive Pulmonary Disease. P & I: Pneumonia and Influenza.
CLDC: Chronic Liver Disease and Cirrhosis.
* National Year 2000 Objectives heart diseases refers to coronary disease only , ICD-9 410-414, 402, 429.2.
** National Year 2000 Objectives diabetes related deaths refers to deaths from diabetes as an underlying or contributing cause, while mortality data only includes underlying cause.
n/a Not available.
Data sources:Tennessee Department of Health, US National Center for Health Statistics.

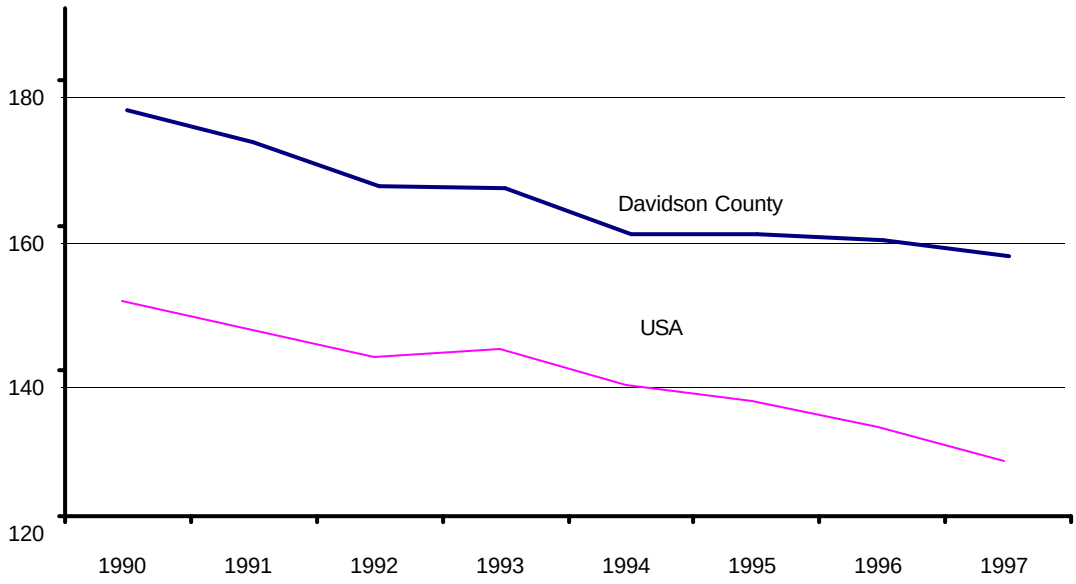
Heart Disease (ICD-9 390-398, 402, 404-429)

Heart disease takes many forms and varies widely in severity. Of paramount public health importance are coronary heart disease, hypertensive heart disease, and rheumatic heart disease because of their widespread nature and the potential for intervention. Coronary heart disease, the most common form of heart disease, occurs when the coronary arteries become narrowed and cannot supply enough oxygen-rich blood to the heart. (4-5)

Although heart disease rates have decreased since 1970, it is the leading cause of death in the United States, State of Tennessee, and Davidson County, TN. In 1997, heart disease killed 1,498 Davidson County residents. Of 1,498 heart disease deaths, 1,200 (80.6%) were deaths due to coronary heart disease. Overall, the age adjusted heart disease mortality rate was 155.7 per 100,000 persons, the age adjusted coronary heart disease rate was 120.9 per 100,000 persons (The National Year 2000 Objective for coronary heart disease is 100.0 per 100,000 persons).

The average heart disease mortality rate in Davidson County, TN during 1990-1997 was 15.5% higher than that of the United States.

Figure 14, Heart Disease, Age-adjusted Rate/100,000 Persons
Davidson County, TN and United States, 1990-1997



From Figure 14, we can see that during 1990-1997 the heart disease mortality pattern in Davidson County, TN mirrored the heart disease mortality pattern in the United States. However, the average heart disease mortality rate in Davidson County, TN during 1990-1997 was approximately 15.5% higher than that of the United States.

During 1997, blacks and males had much higher heart disease mortality rates than whites and females. Overall, the age adjusted death rate for heart disease in Davidson County, TN was 59.0% higher for blacks than for whites, almost twice as high for males as it was for females. (Figure 15)

Figure 16 on the next page exihibits that heart disease mortality increases with age regardless of gender and race. In 1997, 77.8% of heart disease deaths occurred in persons who were age 65 and older.

Figure 15. Heart Disease, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997

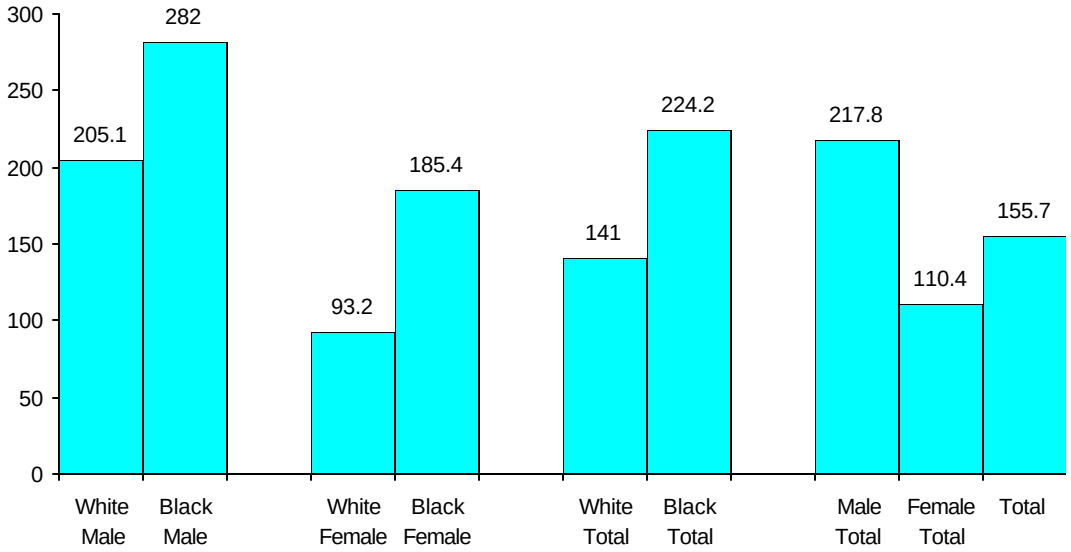
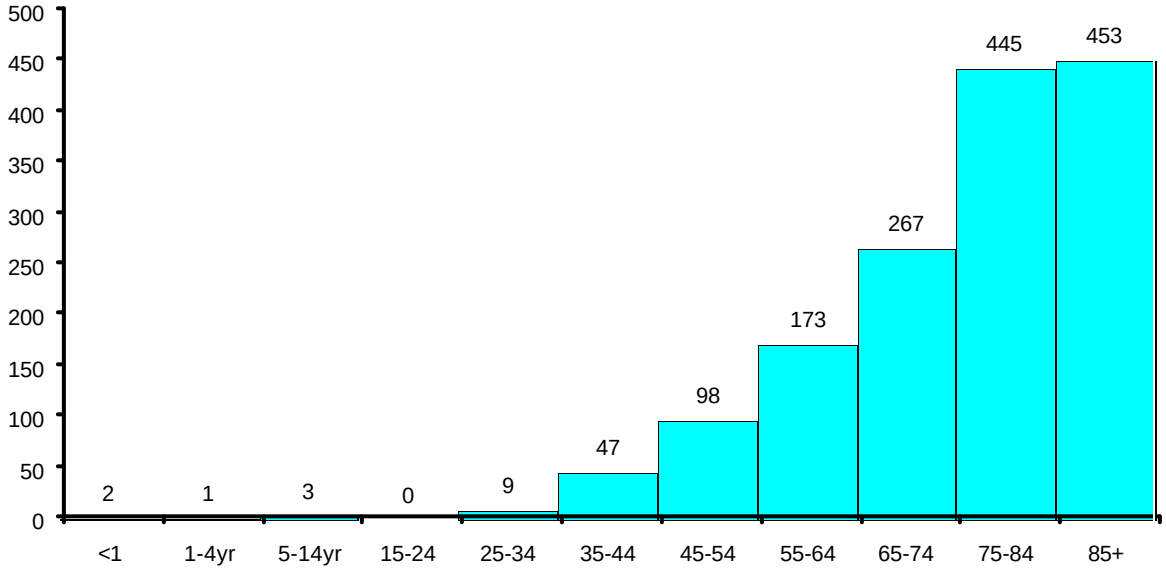


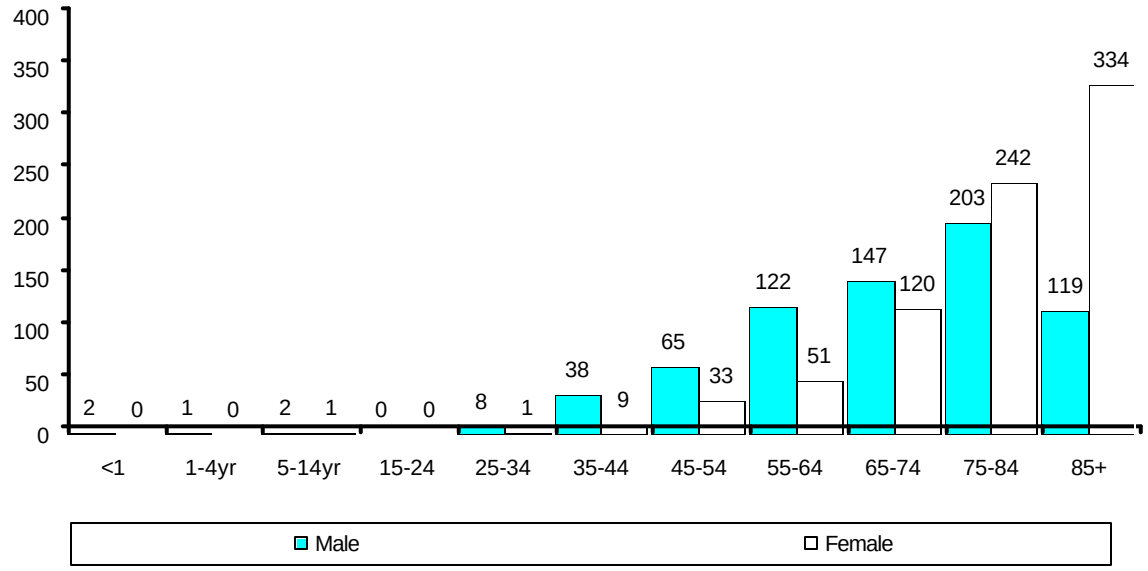
Figure 16. Number of Heart Disease Deaths by Age, Davidson County, TN, 1997



One out of every two men and one out of every three women ages 40 and younger will develop coronary heart disease. At age 70, the risk is still high: one out of every three men and one out of every four women will develop coronary heart disease during their remaining years of life. (6)

For males, major increases in heart disease deaths began in the 35-44 age group while for females, the marked increase was delayed until 45-54 years of age. (Figure 17)

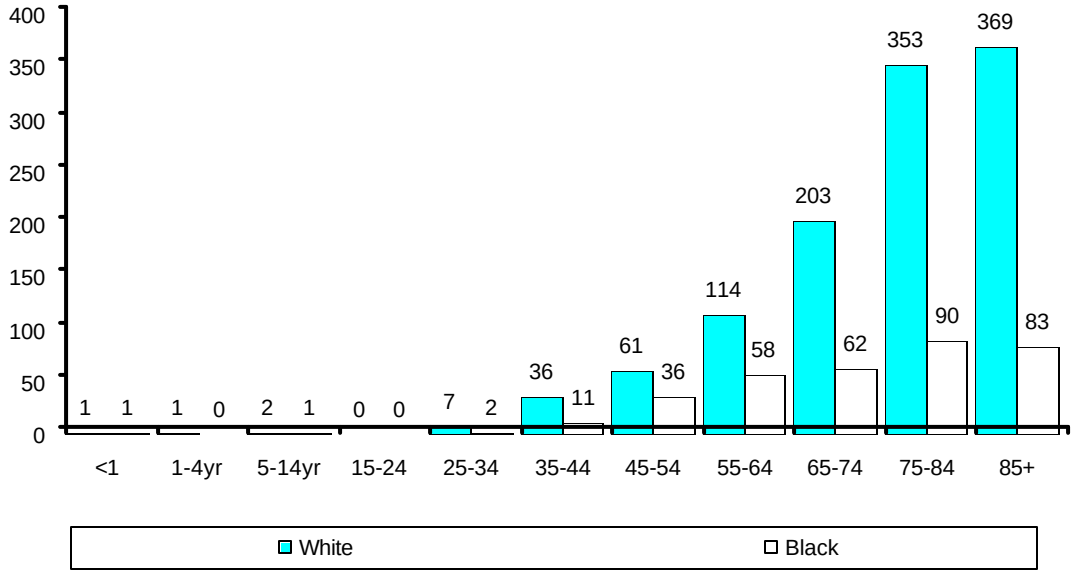
Figure 17. Number of Heart Disease Deaths by Age and Gender, Davidson County, TN, 1997



Every young adult should know their cholesterol and blood pressure numbers, eat in a heart-healthy way, be physically active, and watch their weight to reduce their lifetime risk of heart disease. (6)

For whites, major increases in heart disease began in the 35-44 age group while for blacks, the marked increase was delayed until 45-54 years of age. (Figure 18)

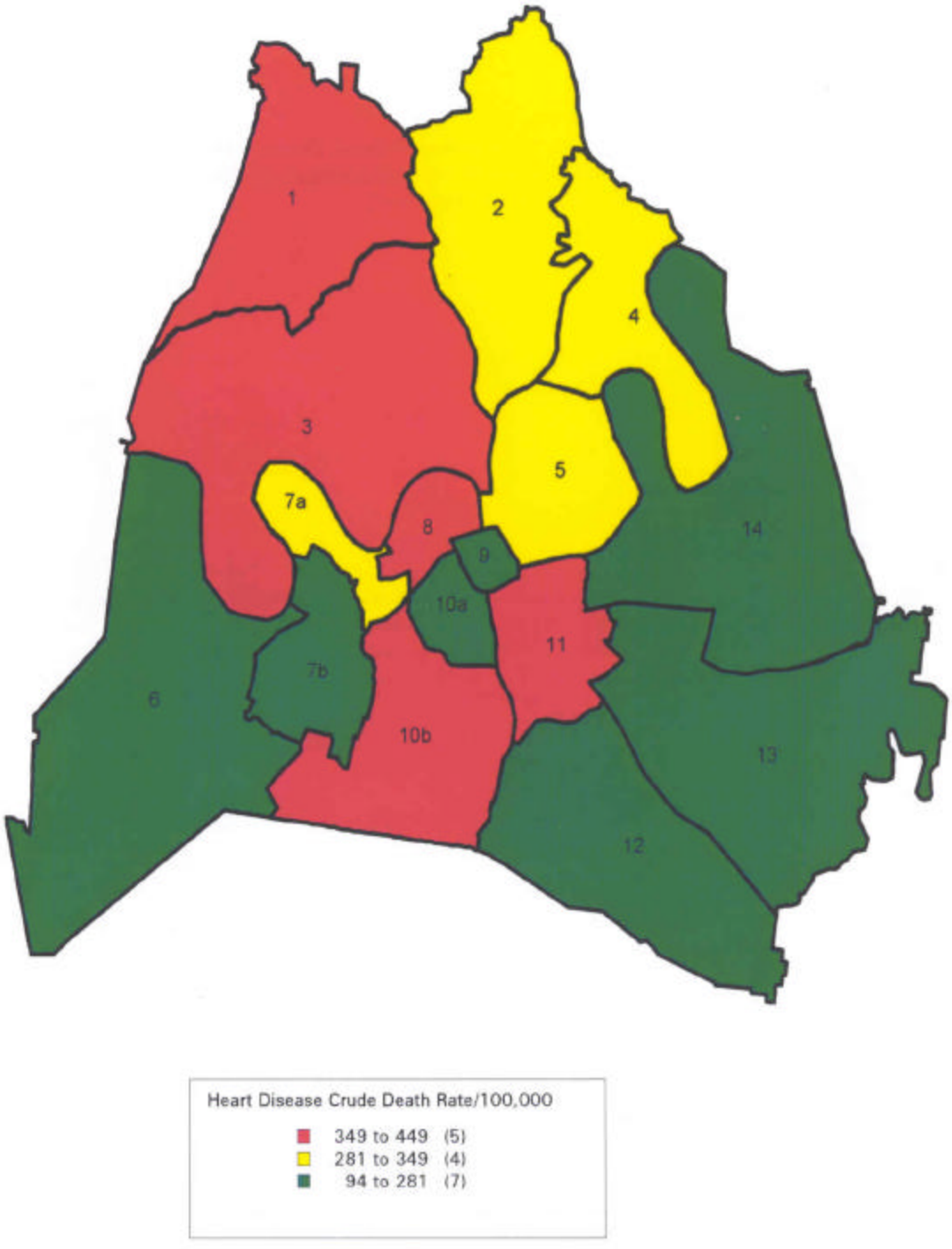
Figure 18. Number of Heart Disease Deaths by Age and Race, Davidson County, TN, 1997



From Map 5 on the next page, we can see that the heart disease crude mortality rate was the highest in planning districts 1,3, 8, 10b, and 11. Due to the small number of heart disease deaths at the planning district level, it is not technically feasible to produce reliable rates from age adjustment. The rates at the planning district level are crude mortality rates. Therefore, comparison of the rates among planning districts should be with caution.

Each day, four Davidson County residents were killed by heart disease in 1997.

Map 5. Heart Disease Crude Death Rates by Planning Districts, Davidson County, TN, 1997



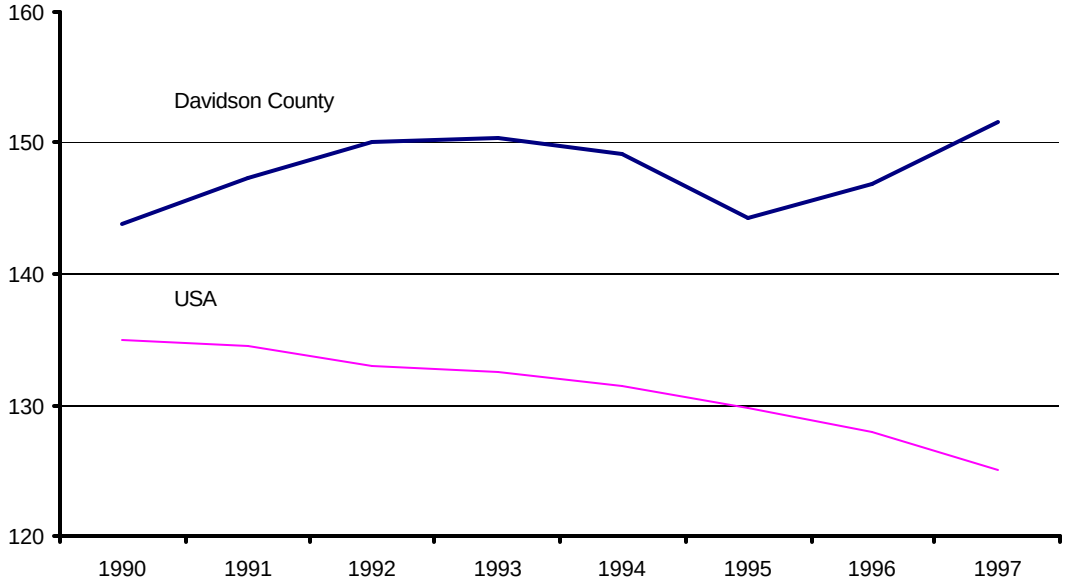
Cancer (ICD-9 140-208)

Cancer is a group of more than 100 different diseases characterized by uncontrolled growth and spread of abnormal cells. The lifetime probability of developing cancer is now estimated at 1 in 3. The rate of new cancer cases and deaths for all cancers combined as well as most of the top 10 cancer sites (locations in the body) declined between 1990 and 1997 in the United States. (5, 7)

By far, the greatest decline in cancer rates has been among men, who overall have higher rates of cancer than women. Decreases in the death rate occurred in men of all ages except those 85 years and older. During the 1990s, lung cancer incidence and death rates declined among males of all racial and ethnic groups except American Indians/Alaska natives. In contrast, lung cancer incidence and death rate increased among women, although the rate of increase has slowed in recent years. (7)

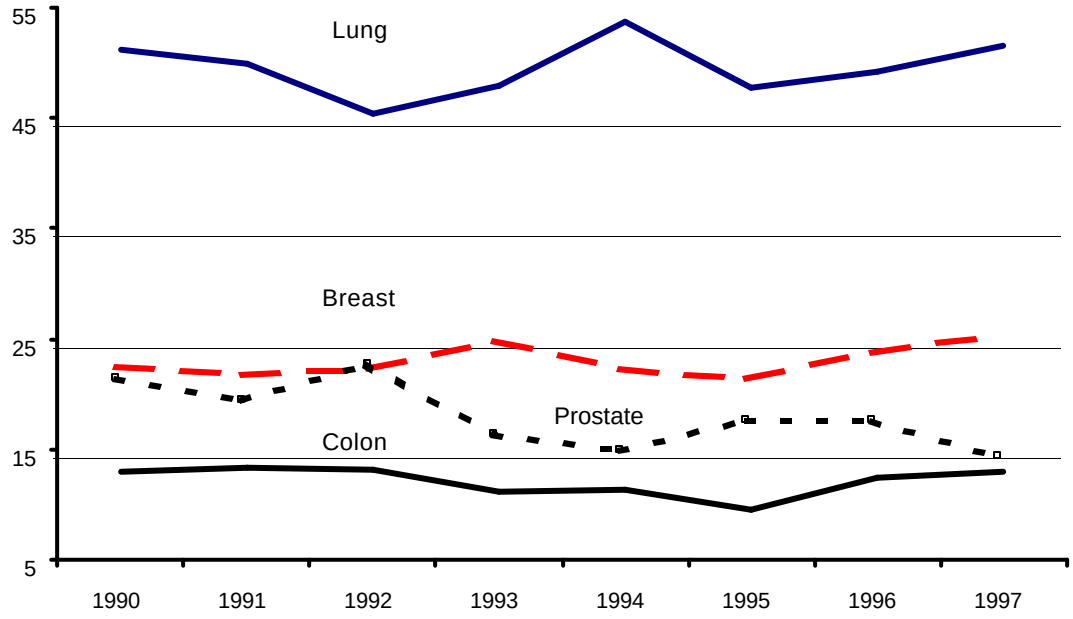
In contrast to the national cancer declining trend, cancer mortality in Davidson County, TN increased during 1990-1997.

Figurre 19. Cancer, Age-adjusted Rate/100,000 Persons, Davidson County, TN and United States, 1990-1997



However, the average cancer mortality rate in Davidson County, TN during 1990-1997 was approximately 13% higher than that of the United States. Futhermore, in contrast to the national cancer declining trend, mortality rate for all cancers combined increased between 1990 and 1997 in Davidson County, TN (Figure 19) . This increase is partially due to the increase of lung cancer and breast cancer mortality rates. (Figure 20)

Figure 20 Lung,Breast, Colon, and Prostate Cancers, Age-adjusted Rate/100,000 Persons, Davidson County, TN, 1990-1997

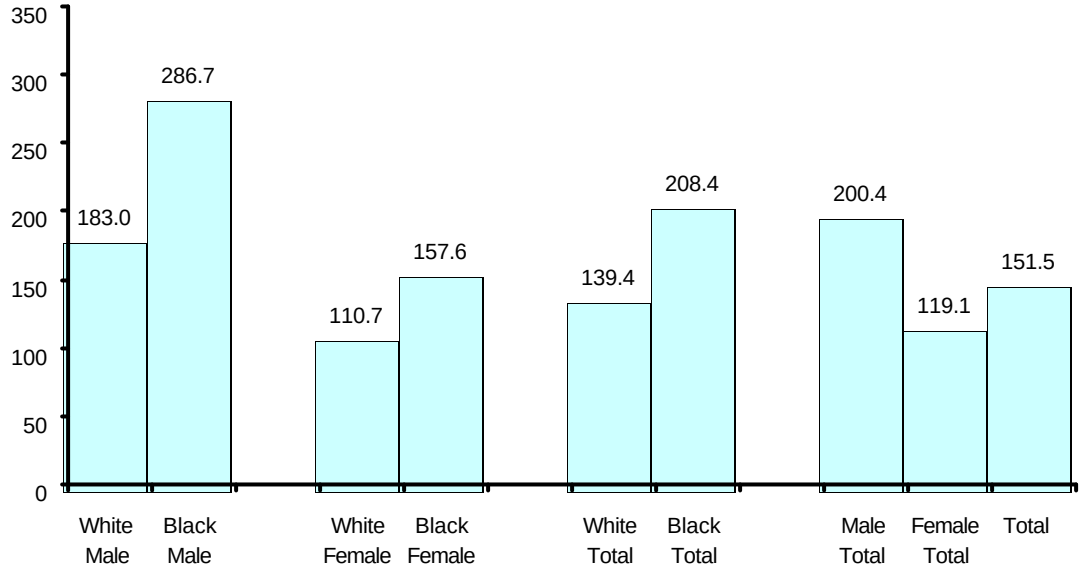


During the same eight year period, the percentage of cancer deaths among total number of deaths for all causes has been relatively stable (mean percentage: 22.7%, range: 22.1% - 23.9%). However, gender composition of cancer deaths changed remarkably. While the percentage of cancer deaths in males declined (from 51.9% of all cancer deaths in 1990 to 47.7% in 1997), the percentage of cancer deaths in females increased (from 48.1% of all cancer deaths in 1990 to 52.3% in 1997).

Racial composition of cancer deaths changed slightly during this eight year time period . While the percentage of cancer deaths in blacks declined from 26% of all cancer deaths in 1990 to 23.5% in 1997, the percentage of cancer deaths in whites increased from 74% of all cancer deaths in 1990 to 76.3% in 1997.

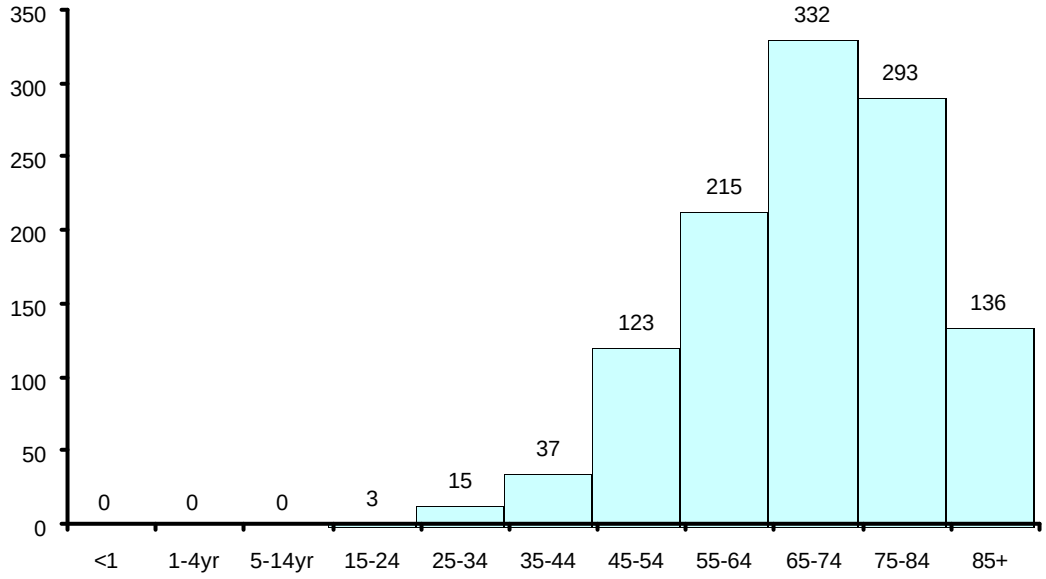
During 1997, blacks and males had higher cancer mortality rates than whites and females. Overall, the age adjusted death rate for cancer in Davidson County, TN is 49.5% higher for blacks than for whites, and 68.3% higher for males than for females. (Figure 21)

Figure 21. Cancer, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997



Cancer mortality increases with age regardless of gender and race. In 1997, 65.9% of cancer deaths occurred in persons who were age 65 and older. (Figure 22) For both genders, major increases in cancer deaths began in the 35-44 age group. Cancer deaths in males exceeded that in females before age 75. (Figure 23) For whites, the major increases in cancer deaths began in the 35-44 age group while for blacks, the marked increase was delayed until age 45-54. (Figure 24)

Figure 22. Number of Cancer Deaths by Age, Davidson County, TN, 1997



Cancer is caused by both external (chemicals, radiation, and viruses) and internal (hormones, immune conditions, and inherited mutations) factors. Causal factors may act together or in sequence to initiate or promote carcinogenesis. Ten or more years often pass between exposures or mutations and detectable cancer. (8)

Figure 23. Number of Cancer Deaths by Age and Gender, Davidson County, TN, 1997

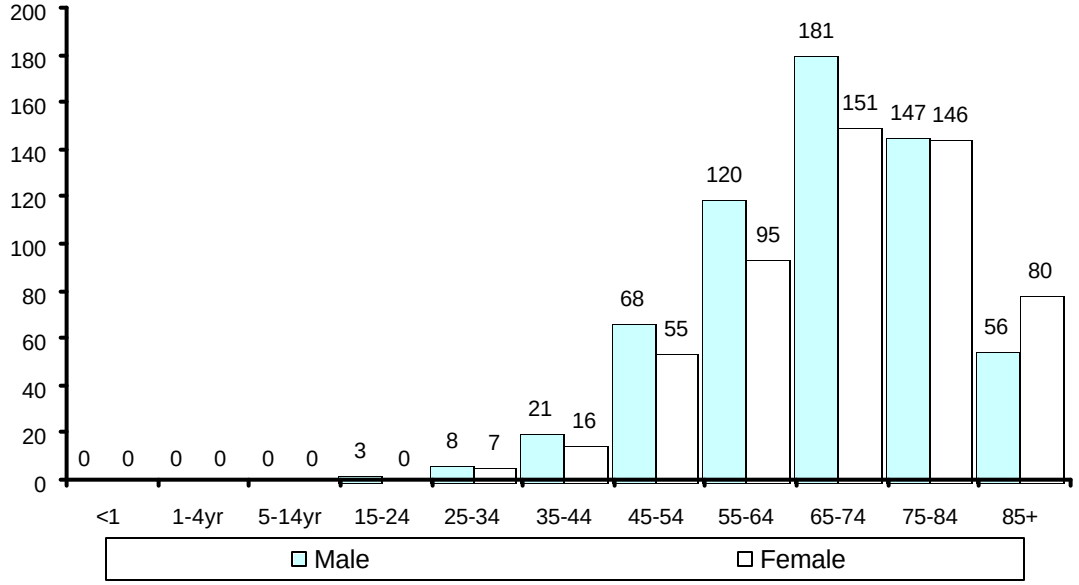
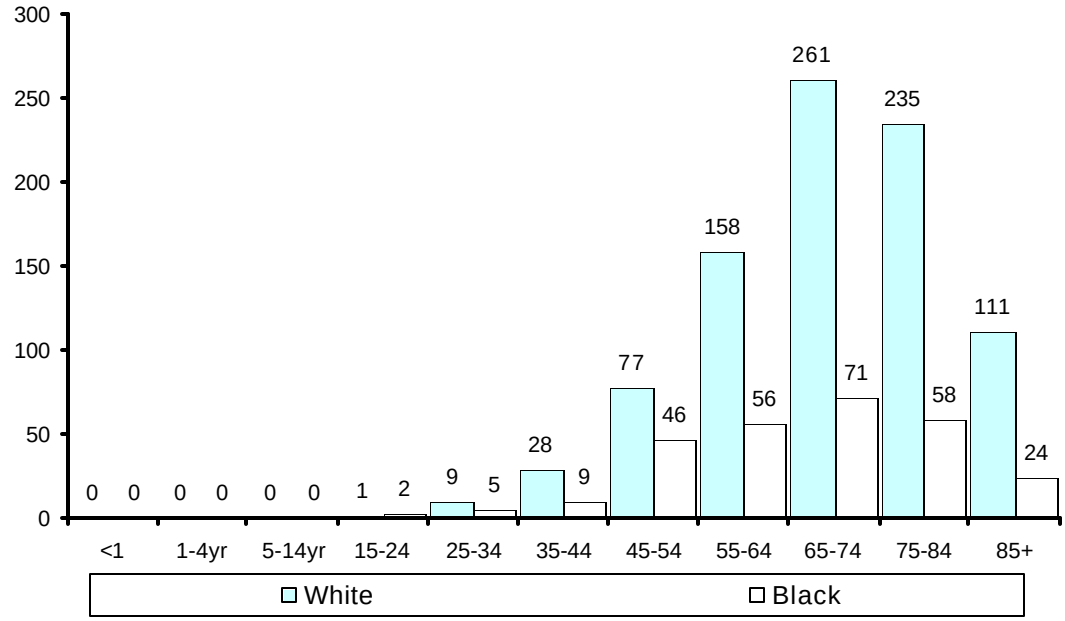
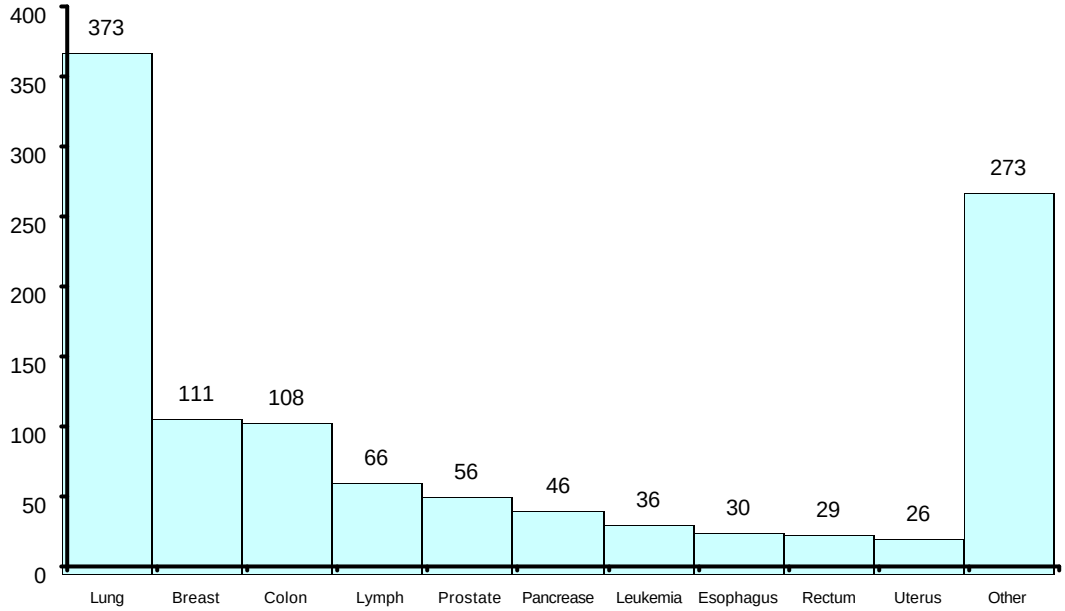


Figure 24. Number of Cancer Deaths by Age and Race, Davidson County, 1997



In 1997, cancer was the second leading cause of death in Davidson County, TN, accounting for 1,154 deaths. Of the 1,154 cancer deaths, lung cancer accounted for 32.3% of cancer deaths, seconded by breast cancer (9.6%). The top five cancer sites were: lung, breast, colon, lymphatic issue, and prostate. (Figure 25)

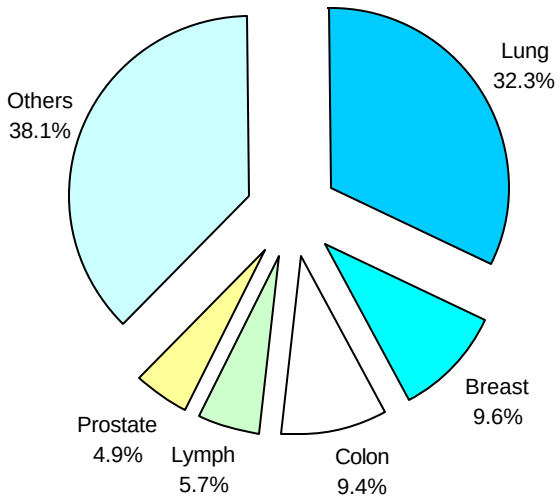
Figure 25. Number of Cancer Deaths by Site, Davidson County, TN, 1997



The prevalence of cigarette smoking among adults has declined over the past 25 years, but this trend has stalled during the past four to five years. At the same time, the number of high school students smoking cigarettes has continued to increase during the 1990s. Unless this trend can be reversed, the lung cancer rates that are currently declining in the United States may rise again. (7)

Lung cancer was the most common cancer in Davidson County, TN. (Figure 26) Approximately one third of cancer deaths were due to lung cancer (32. 3 %). This percentage was higher than the national percentage (lung cancer was 28.5% of all cancer deaths in 1997 in the United States). The age adjusted lung cancer death rate in Davidson County, TN was 51.5 per 100,000 persons in 1997, 38.1% higher than the national lung cancer death rate (37.3 per 100,000 persons).

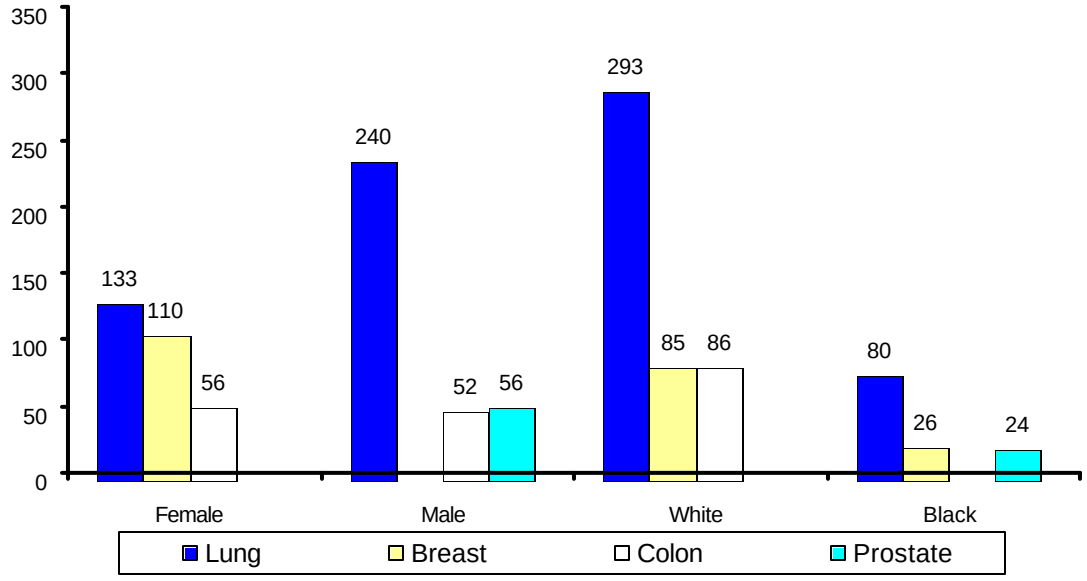
Figure 26. Percentage of Deaths in Each Cancer Sites, Davidson County, TN, 1997



Many cases of cancer can be prevented by not using tobacco products, avoiding the harmful rays of the sun, and choosing foods with less fat and more fiber. In addition, regular checkups and self-exams can reveal cancer at an early stage when treatment is likely to be effective. (8)

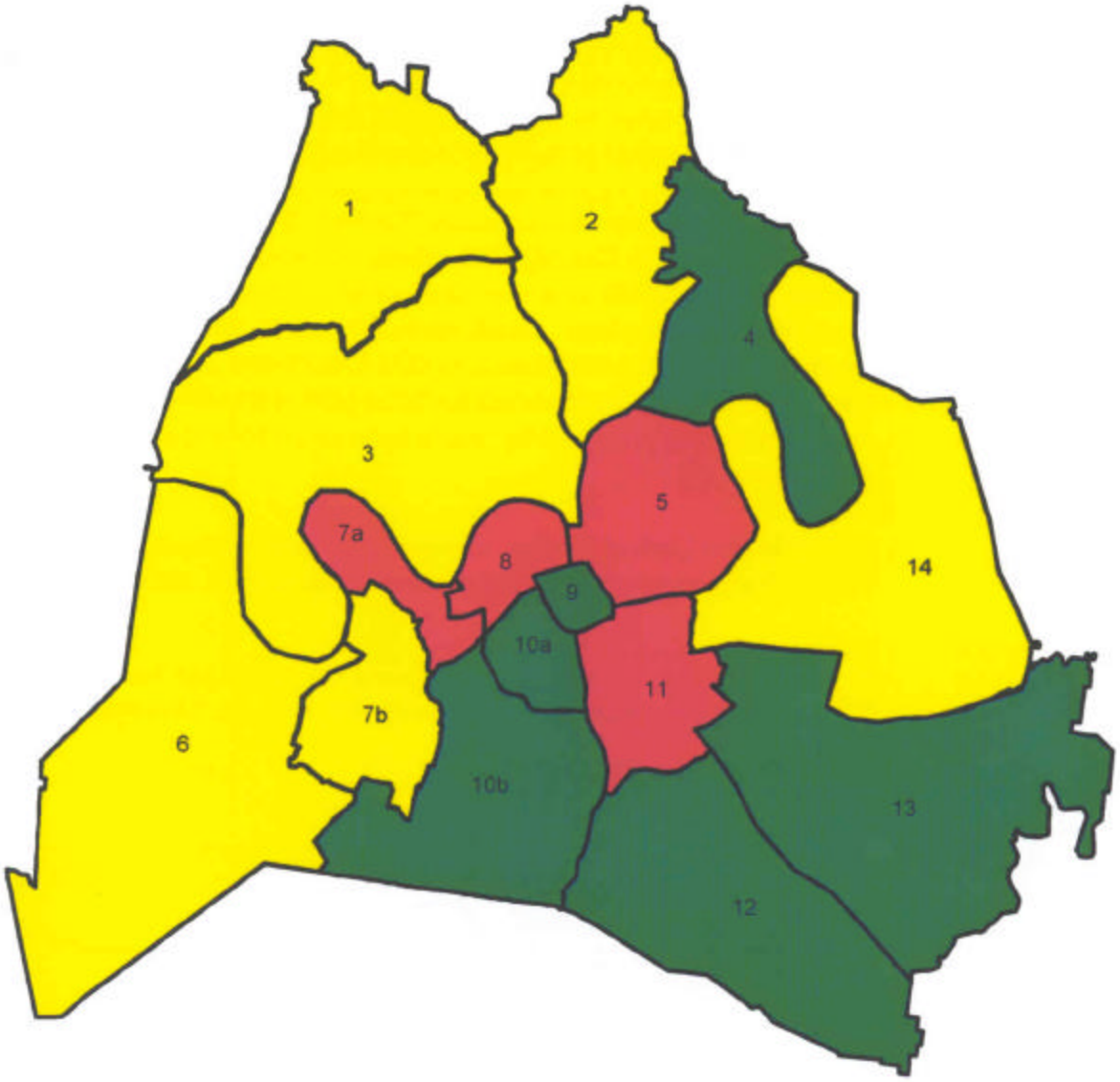
Figure 27 shows the three leading cancer sites for males, females, whites, and blacks. It is clear that lung cancer is the leading cancer site regardless of gender and race. For males, the top three cancer sites were lung, colon, and prostate. For females, the top three cancer sites were lung, breast, and colon. For whites, the top three cancer sites were lung, breast, and colon. For blacks, the top three cancer sites were lung, breast, and prostate.

Figure 27. Number of Deaths, Three Leading Sites for Cancer Deaths by Gender and Race, Davidson County, TN, 1997



From Map 6 on the next page, we can see that the cancer crude mortality rates were high in planning districts 5, 7a, 8, and 11. Due to the small number of cancer deaths at the planning district level, it is not technically feasible to produce reliable rates from age adjustment. The rates at the planning district level are crude mortality rates. Therefore, comparison of the rates among planning districts should be with caution.

Map 6. Cancer Crude Death Rates by Planning Districts, Davidson County, TN, 1997



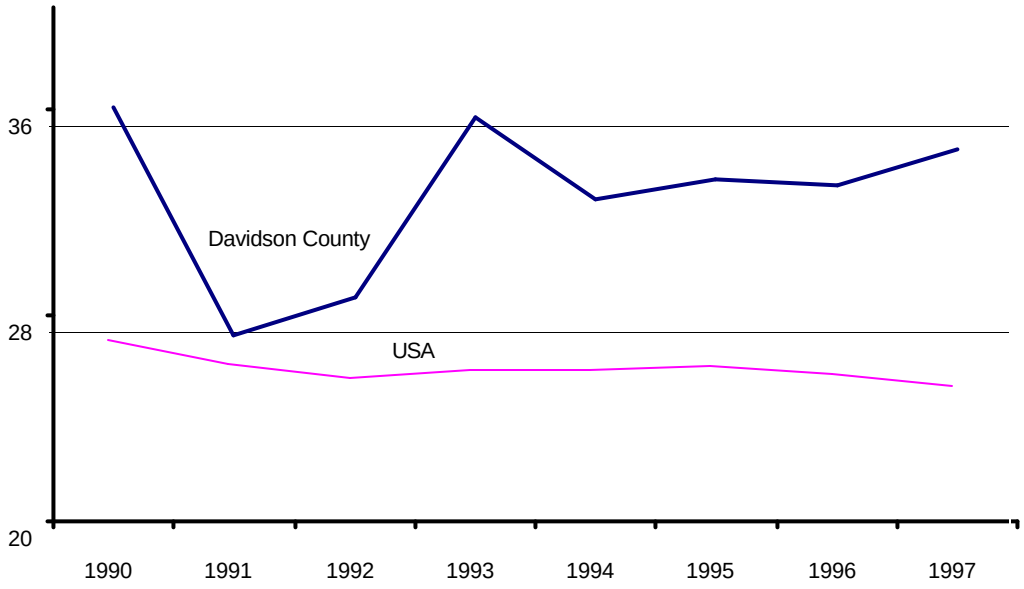
Stroke (ICD-9 430-438)

A stroke is an interruption of the flow of blood to the brain. Stroke includes a group of diseases that affect the arteries of the central nervous system. Stroke results when an artery in the brain is either ruptured or clogged by a blood clot (thrombus), a wandering clot (embolus), or atherosclerotic plaque. Nerve cells in the affected part of the brain die within minutes, often resulting in neurologic impairment.(4, 5)

Stroke, or cerebrovascular disease, is the third leading cause of death in Davidson County, TN, State of Tennessee, and the United States. It represents over one-sixth of all cadiovascular disease deaths and 7% of deaths from all causes. Stroke is also a major cause of morbidity, with an estimated 500,000 Americans suffering from stroke each year. Stroke-associated societal cost, including costs of medical care and lost of productivity, were estimated to exceed $40 billion in 1997 alone.(5)

In the United States, stroke rates are highest in the Southeast states, Tennessee being one of them. Since 1950, stroke mortality in the

Figure 28. Stroke, Age-adjusted Rate/100,000 Persons
Davidson County, TN and United States, 1990-1997



United States has dropped over 65%. The trend has been uniformly downward for both sexes and all race groups. The decline has been attributed in part to the control of hypertension, secondary prevention of stroke, and decline in smoking. (5)

However, stroke mortality in Davidson County, TN displayed a different pattern. As seen in Figure 28, stroke mortality in Davidson County, TN was much higher than the national rate in 1990. It dropped close to the national level in 1991 and increased again since 1992, making average age adjusted mortality rate in Davidson County, TN 22.8% higher than that of the United States for this eight year period.

Figure 29. Stroke, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997

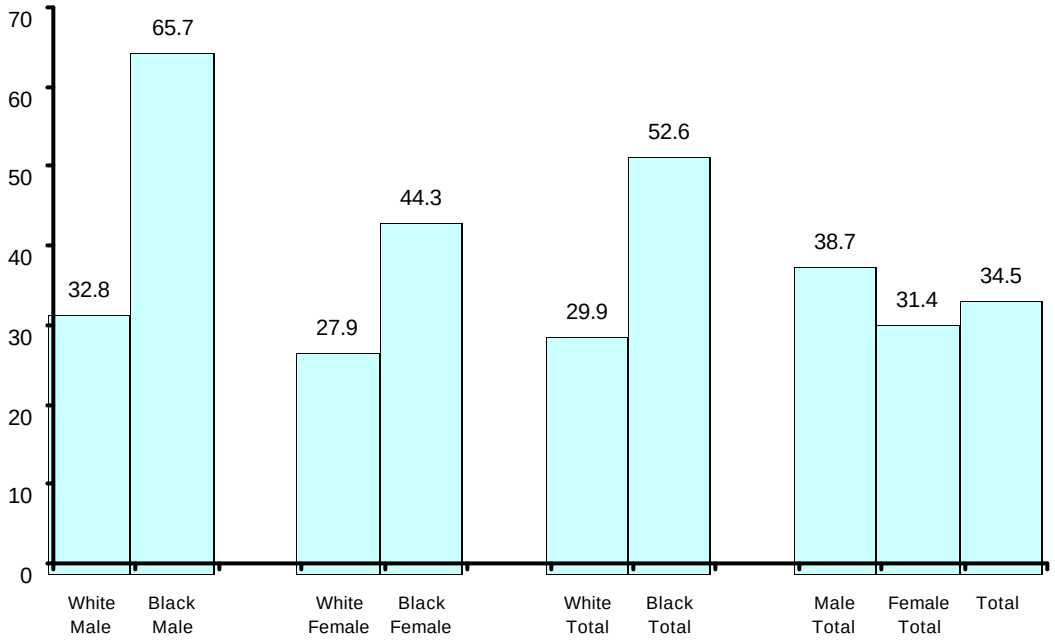
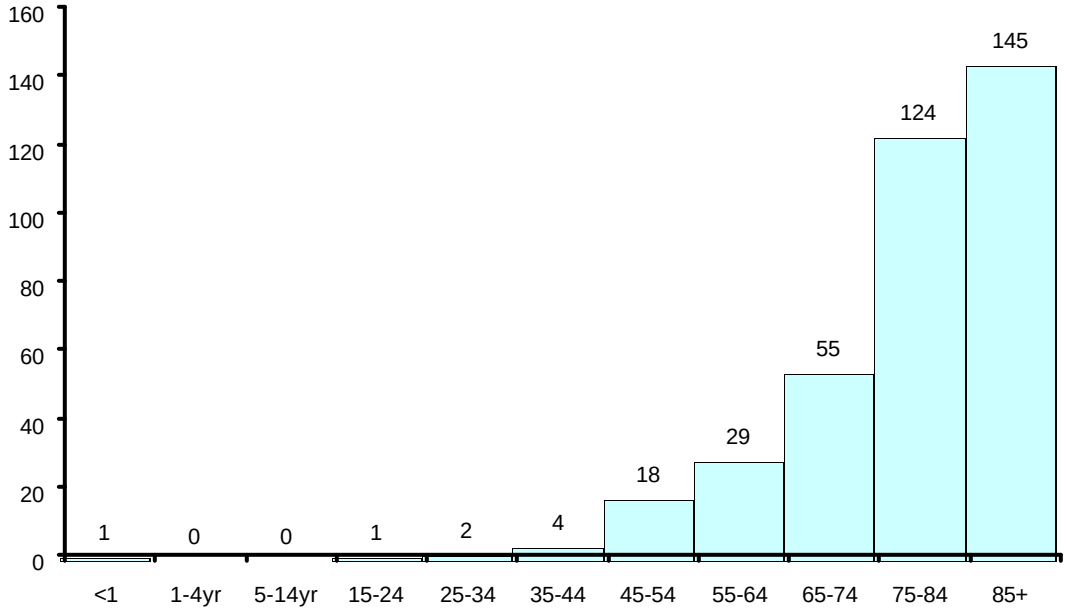


Figure 29 reveals that during 1997 age adjusted stroke mortality rate was 34.5 per 100,000 persons. White females had the lowest stroke mortality rates (27.9) while black males had the highest rate (65.7) . Blacks and males had higher stroke mortality than whites and females. Overall, the age-adjusted death rate for stroke in Davidson County, TN was approximately 75.9% higher for blacks than for whites, and 23.2% higher for males than for females.

Stroke mortality increases with age. In 1997, 85.5 % of stroke deaths occurred in persons who were age 65 and older in Davidson County, TN. (Figure 30)

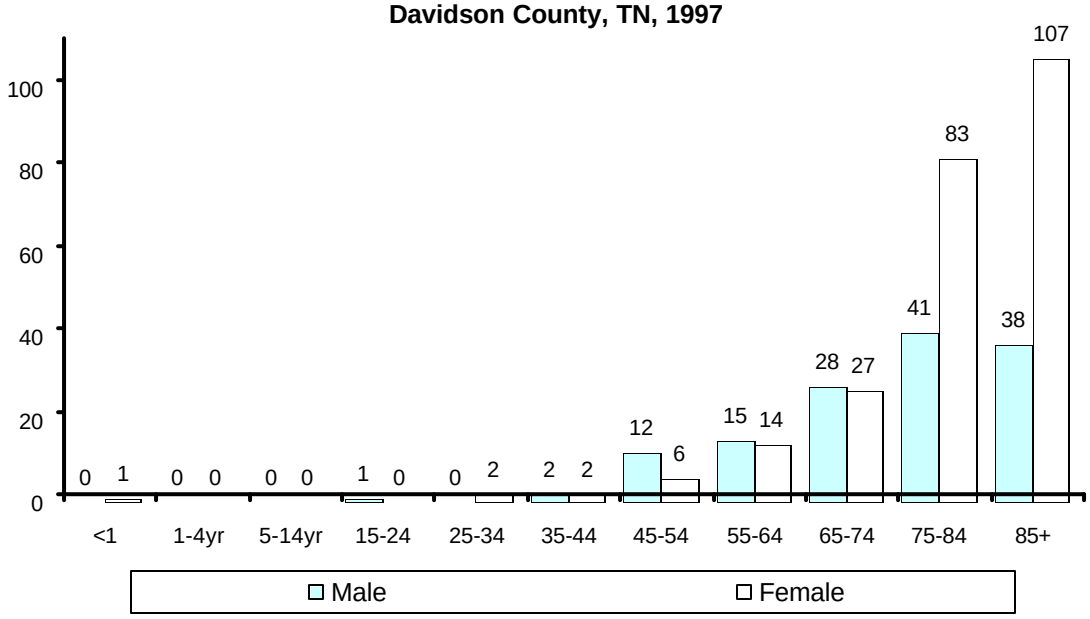
Figure 30. Number of Stroke Deaths by Age, Davidson County, TN, 1997



Stroke killed one Davidson County resident each day, seven persons each week, and 31 persons each month in 1997.

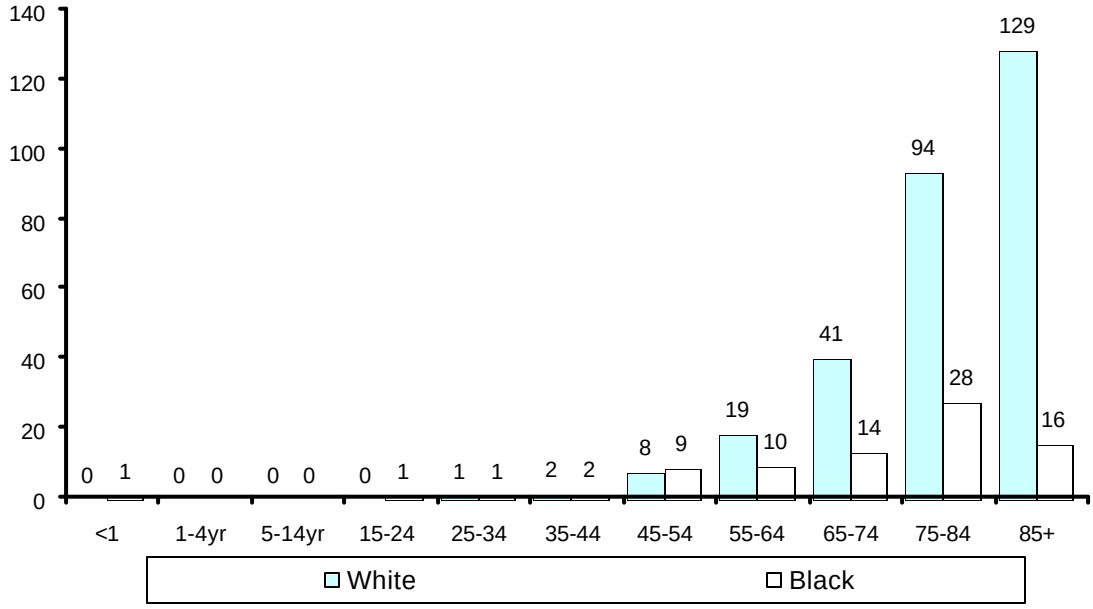
For both genders, major increases in stroke death began in the 45-54 age group. Stroke deaths in males exceeded that in females before age 75. After age 75, stroke deaths in females exceeded that in males. (Figure 31) For both whites and blacks, major increases in stroke deaths began in the 45-54 age group. However, stroke deaths in blacks disproportionately exceeded that in whites. (Figure 32)

Figure 31. Number of Stroke Deaths by Age and Gender, Davidson County, TN, 1997



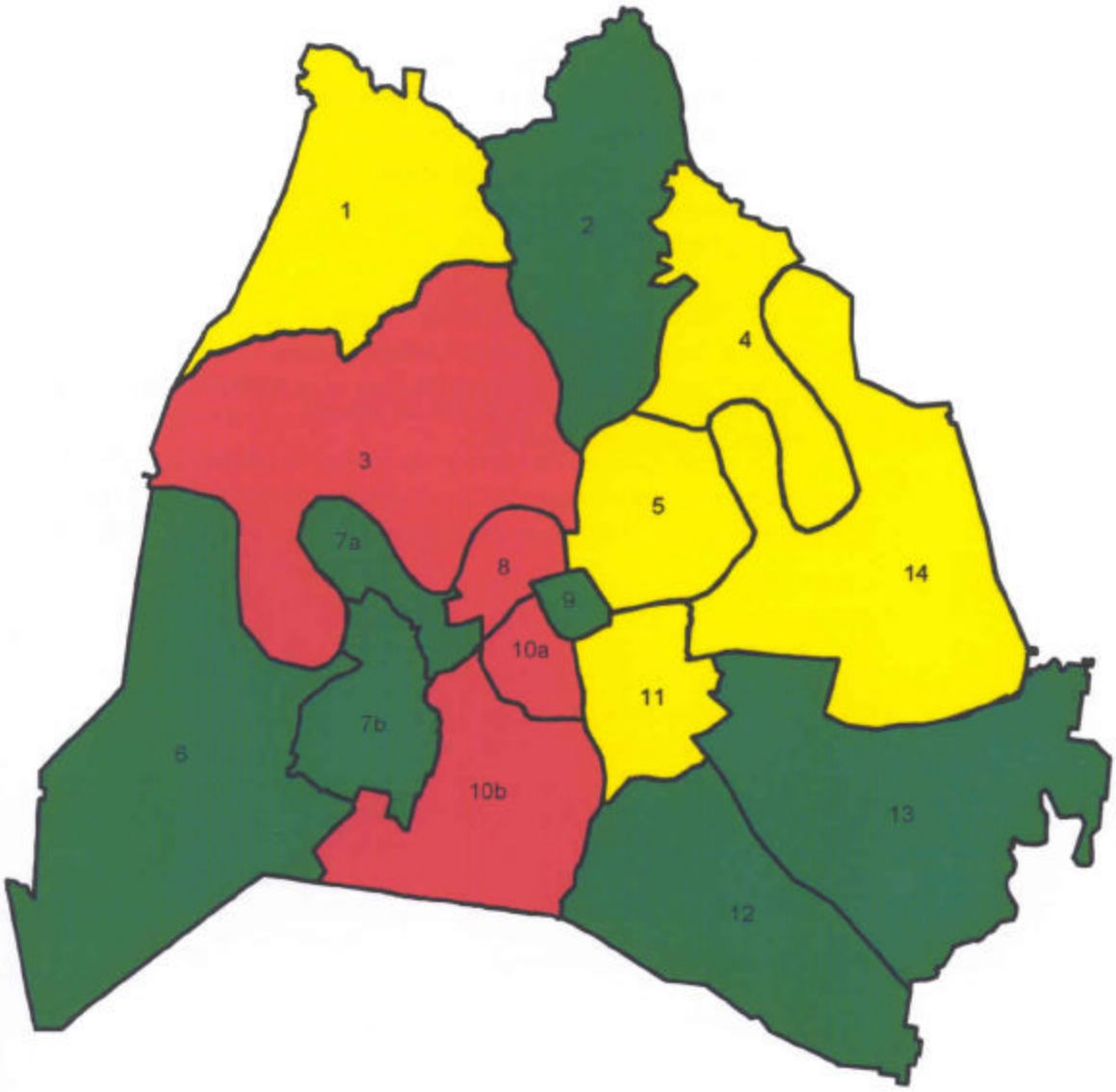
Of twenty-two stroke risk factors, fourteen are treatable or at least partly preventable. They are hypertension, heart disease, prior stroke, increased hematocrit, sickle cell anemia, alcohol consumption, diabetes, cigarette smoking, obesity, cocaine, serum lipids, oral contraceptives, poverty, and physical inactivity. (9)

Figure 32, Number of Stroke Deaths by Age and Race, Davidson County, TN, 1997



Map 7 on the next page illustrates that the stroke crude mortality rate was high in planning districts 3, 8, 10a, and 10b. Due to the small number of stroke deaths at the planning district level, it is not technically feasible to produce reliable rates from age adjustment. The rates at the planning district level are crude mortality rates. Therefore, comparison of the rates among planning districts should be done with caution.

Map 7. Stroke Crude Death Rates by Planning Districts, Davidson County, TN, 1997



Number in parenthesis represents number of planning districts in this rate range

COPD (ICD-9 490-496)

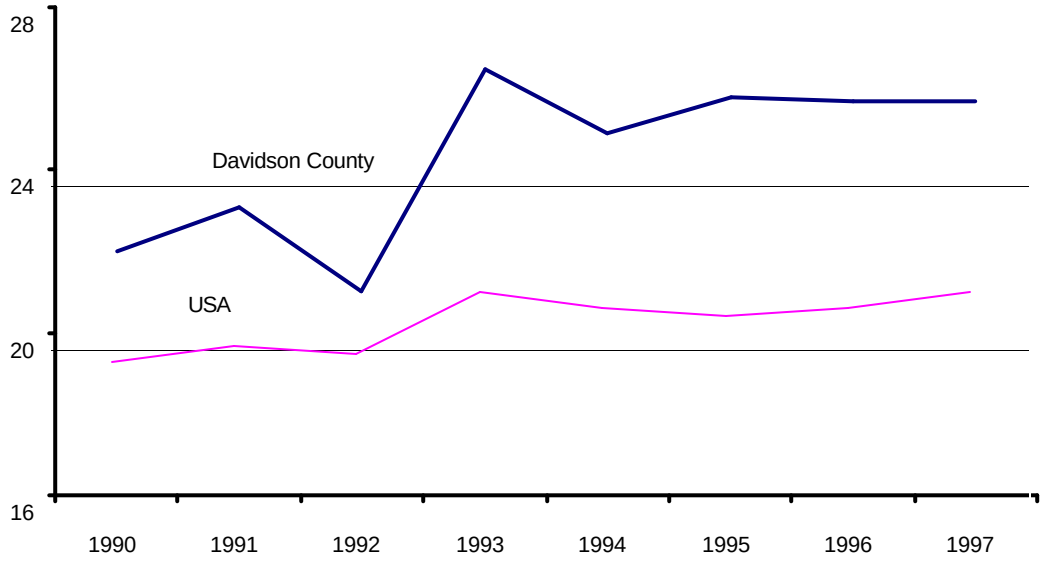
Chronic Obstructive Pulmonary Disease (COPD)

has been defined as a process characterized by nonspecific changes in the lung parenchyma and bronchi that may lead to emphysema and airflow obstruction, including chronic bronchitis, emphysema, chronic airway obstruction, and other conditions. Although asthma is nearly as prevalent in the general population as COPD, more people die from COPD. (5, 10)

COPD is the fourth leading cause of deaths in Davidson County, TN, State of Tennessee, and the United States. In 1997, COPD accounted for 110, 637 deaths in the United States and 228 in Davidson County, TN.

Overall, COPD mortality rates have increased dramatically in recent years. One reason for the increase in the prevalence of COPD is the increase in the number of older people in the United States. (5)

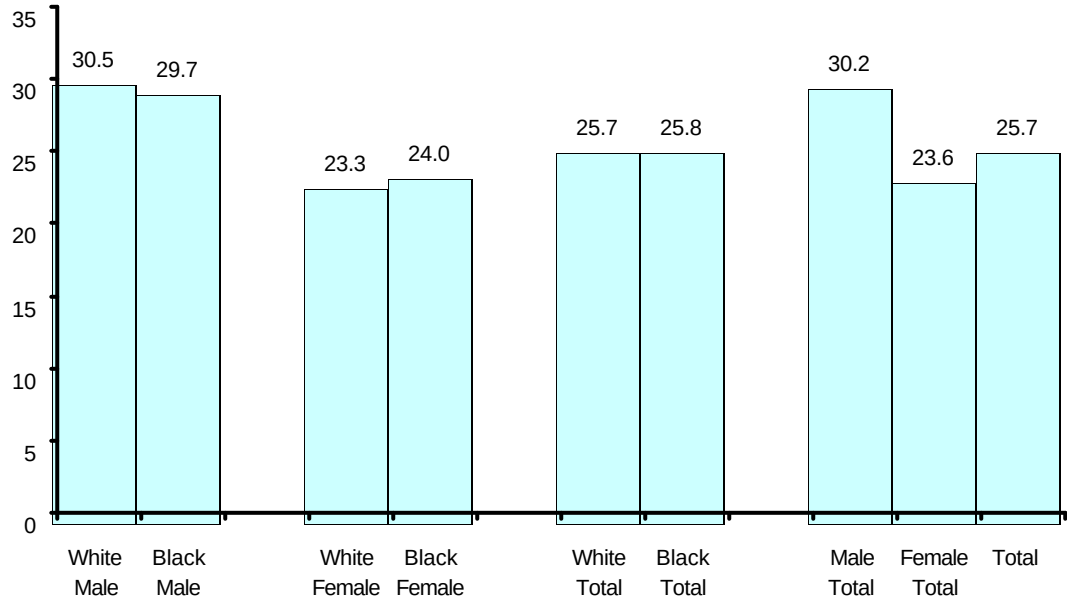
Figure 33, COPD, Age-adjusted Rate/100,000 Persons, Davidson County, TN, and United States, 1990-1997



The COPD mortality trend in Davidson County, TN mirrored the national COPD mortality trend, however, the average COPD age adjusted mortality rate for 1990-1997 in Davidson County, TN was 18.0% higher than that of the United States. Futhermore, the difference of COPD mortality rate between Davidson County, TN and the United States became larger during this eight year period from a rate difference of 2.3 in 1990 to 4.3 in 1997. (Figure 33)

Figure 34 shows that in 1997 age adjusted COPD mortality was 25.7 per 100,000 persons in Davidson County, TN. The COPD mortality rate for whites was almost identical to that of blacks. However, males did have a 28.0% higher COPD mortality rate than females.

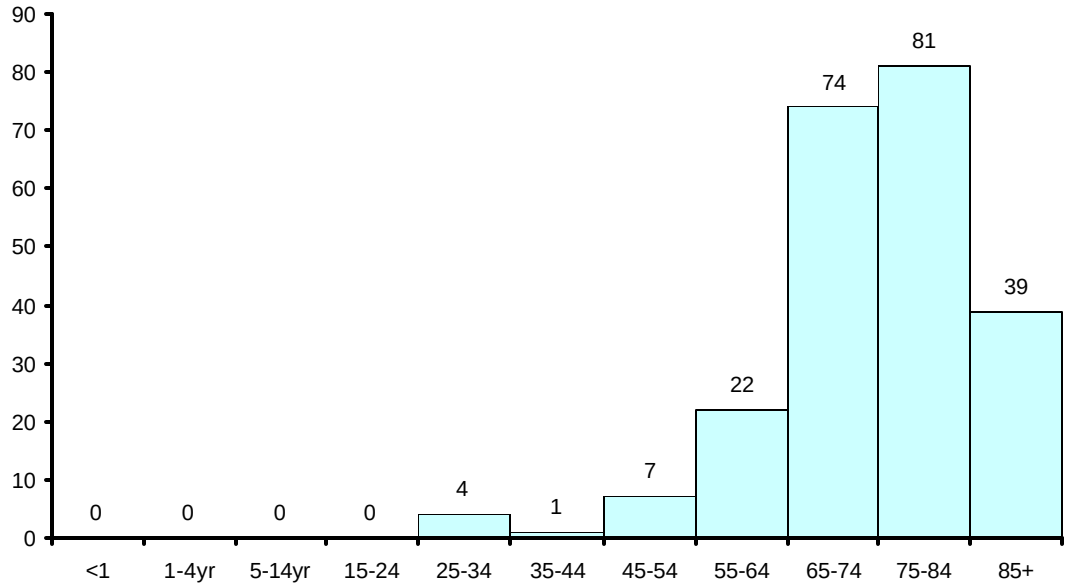
Figure 34. COPD, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997



COPD killed four Davidson County residents each week in 1997.

COPD mortality increased with age. In 1997, 85.1% of COPD deaths occurred in persons who were age 65 and older in Davidson County, TN. (Figure 35)

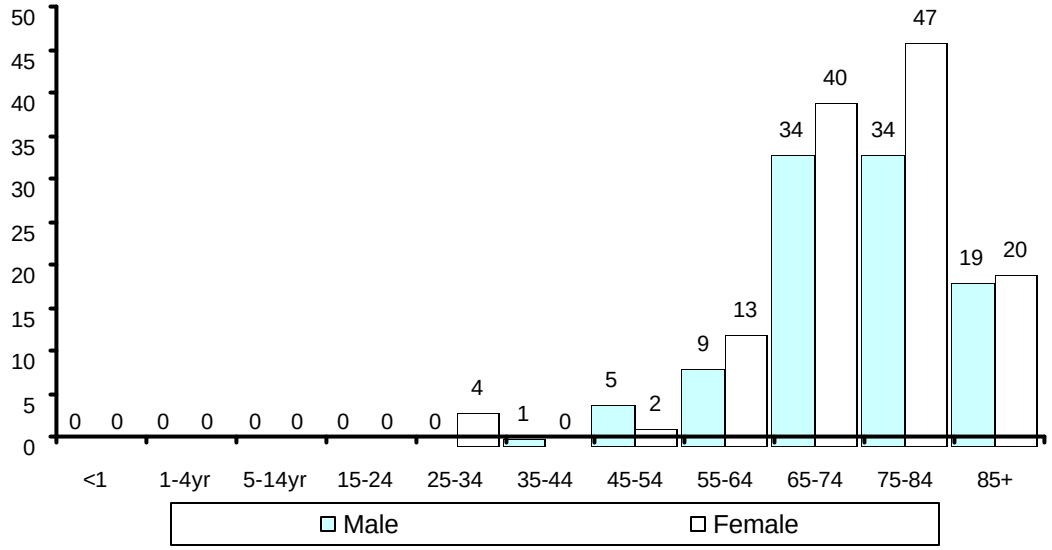
Figure 35. Number of COPD Deaths by Age, Davidson County, TN, 1997



The strongest risk factor for COPD development is cigarette smoking. Almost 90% of COPD is attributable to cigarette smoking. (5, 11)

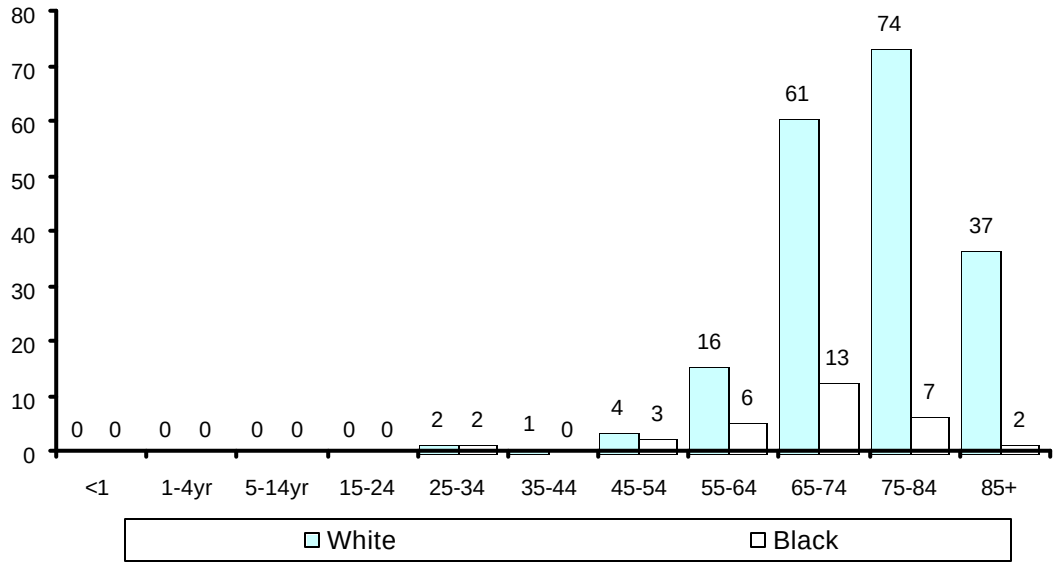
Literature suggests that there is a much greater incidence of COPD among men than women. Besides gender, age accounts for a great variability with a much greater incidence in older people. Differences in smoking habits probably account for most of these variations. With more women smoking, this variation will disappear as the population grows older. (12) In 1997, more females died of COPD than males (126 females and 102 males) in Davidson County, TN. For both genders, major increases in COPD deaths began in the 55-64 age group. COPD deaths in females exceeded that in males before age 85. (Figure 36)

Figure 36, Number of COPD Deaths by Age and Gender, Davidson County, TN, 1997



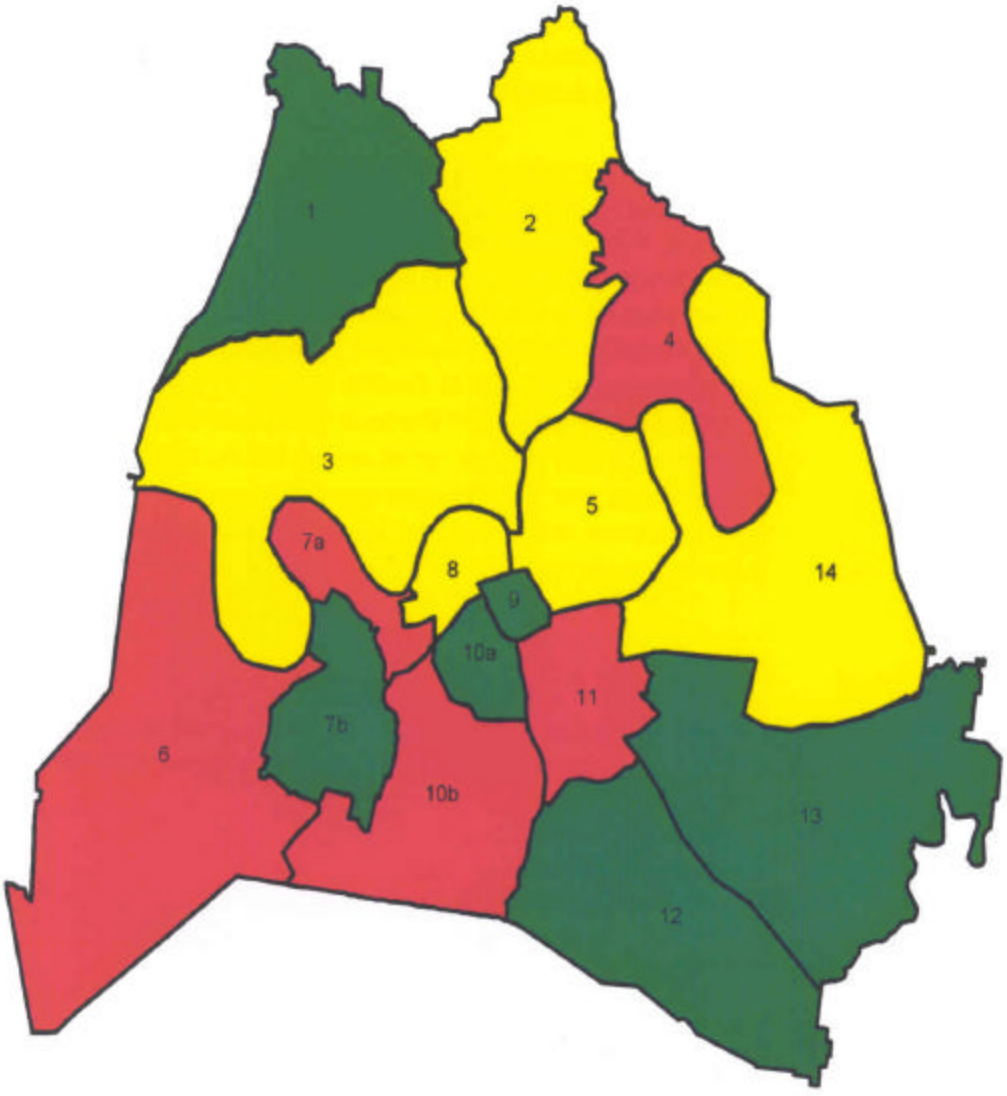
For both whites and blacks, major increases in COPD deaths began in the 55-64 age group. However, COPD deaths in whites were disproportionately higher than that in blacks.(Figure 37)

Figure 37. Number of COPD Deaths by Age and Race, Davidson County, TN, 1997



From Map 8 on the next page, we can see that the COPD crude mortality rate was high in planning districts 4, 6, 7a, 10b, and 11. Due to the small number of COPD deaths at the planning district level, it is not technically feasible to produce reliable rates from age adjustment. The rates at the planning district level are crude mortality rates. Therefore, comparison of the rates among planning districts should be done with caution.

Map 8. COPD Crude Death Rates by Planning Districts, Davidson County, TN, 1997



Number in parenthesis represents number of planning districts in this rate range

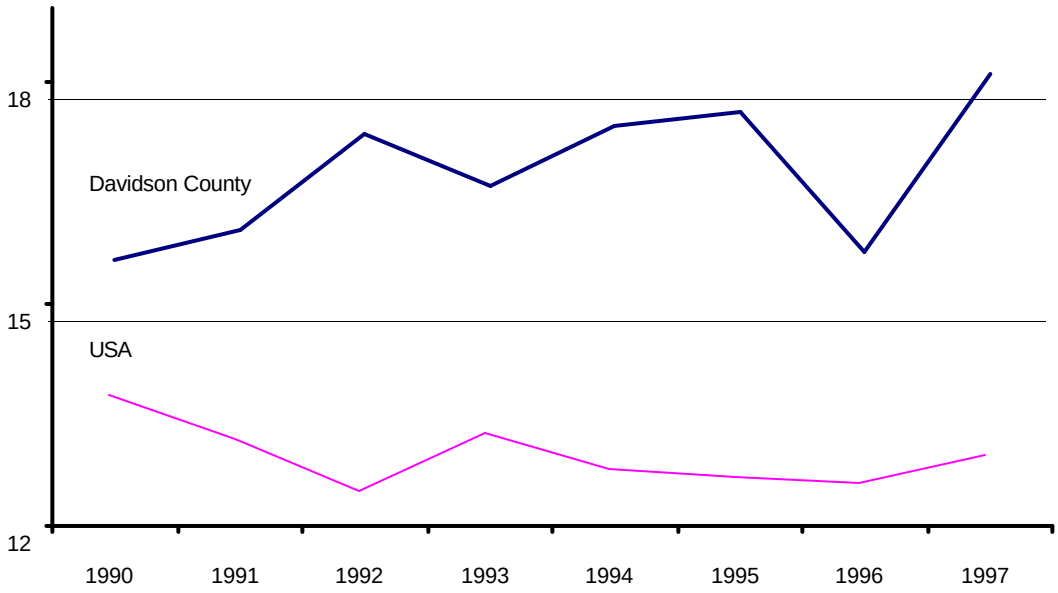
P & I (ICD-9 480-487)

Pneumonia and Influenza (P & I)

was the fifth leading cause of deaths in Davidson County, TN and the sixth leading cause of deaths in State of Tennessee and the United States in 1997.

Pneumonia is not a specific disease. It is a general term for several kinds of lung inflammation. It is usually caused by viruses or bacteria. When death results, it is often due to the complications of some other severe diseases. (13) Influenza is an acute febrile respiratory illness caused by influenza virus A, B, or C. Although typically a mild or asymptomatic disease, influenza can be severe and even fatal, especially in the older population. (14) Deaths caused by pneumonia and influenza average 5 to 6 percent of the total U.S. deaths and peak in the winter. Estimates of total U.S. expenditures on influenza range from $1 billion to $3 billion per year. Of particular concern are cases of influenza in nursing homes, where attack rates are up to 80% and case-fatality rates of 30% have been reported. (14)

Figure 38. P & I, Age-adjusted Rate/100,000 Persons, Davidson County, TN and United States, 1990-1997



From 1990 to 1997, average age adjusted P & I mortality in Davidson County was 27.7% higher than that of the United States. Furthermore, while P & I mortality decreased in the United States it increased in Davidson County, TN. As a result, a bigger difference of P & I mortality rate between Davidson County, TN and the United States occurred. The age adjusted P & I mortality rate difference was 1.6 deaths per 100,000 persons in 1990. It was 4.9 in 1997. (Figure 38)

Figure 39. P & I, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997

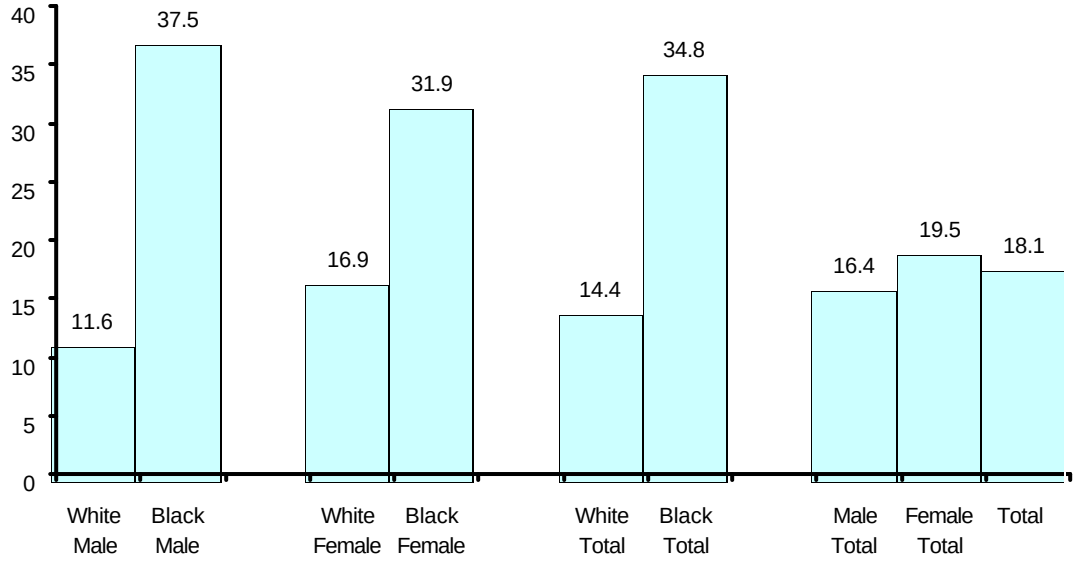
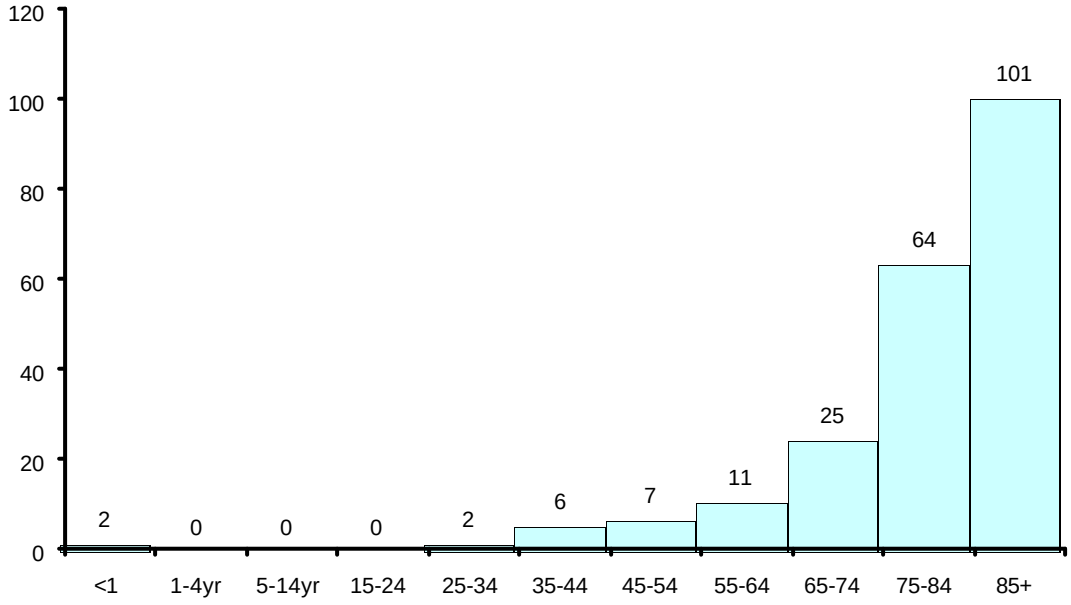


Figure 39 reveals that during 1997 age adjusted P & I mortality was 18.1 per 100,000 persons. White males had the lowest P & I mortality rates (11.6) while black males had the highest. (37.5) Blacks and females had higher P & I mortality than whites and males. Overall, the age-adjusted death rate for P & I in Davidson County, TN was approximately 141.7% higher for blacks than for whites, and 18.9% higher for females than for males.

P & I mortality increases with age. In 1997, 87.2% of P & I deaths occurred in persons who were age 65 and older in Davidson County, TN. (Figure 40)

Figure 40. Number of P & I Deaths by Age, Davidson County, TN, 1997

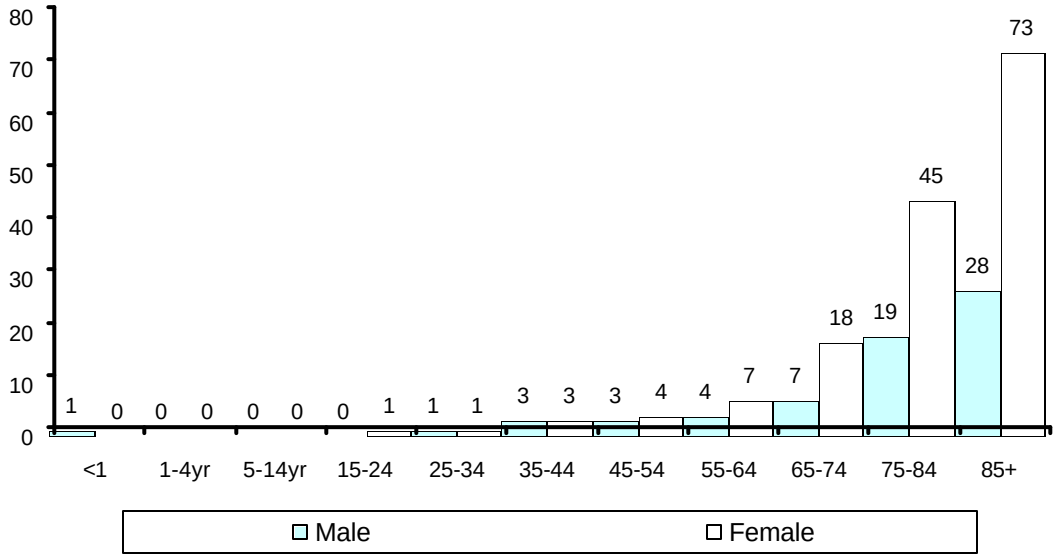


An estimated 50,000 to 70,000 Americans die each year from three major infections - influenza, hepatitis B, and pneumococcal pneumonia. Every year 40,000 older Americans lose their lives to pneumococcal infections. Yet one lifetime inoculation can cut the rate of infection by 60 percent. Despite this fact, only 14 percent of persons 65 and older have received the vaccine which can be given in a doctor's office. (15)

Figure 41 shows that in 1997 for males, major increases in P & I deaths began in the 75-84 age group while for females this increase started at age 65-74 . P & I deaths in females exceeded that in males after age 45.

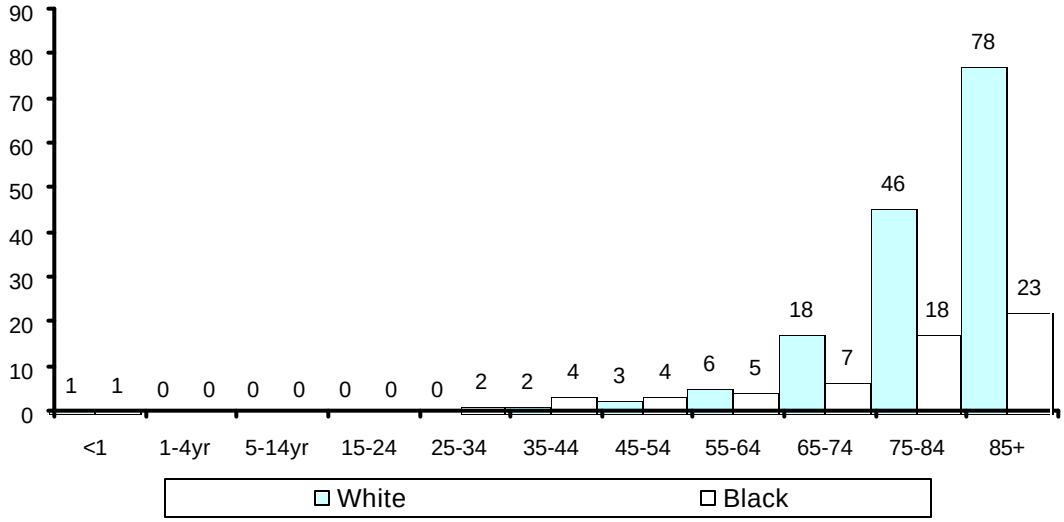
For whites, a major increase in P & I deaths began in the 65-74 age group. For blacks, P & I deaths did not begin to increase until age 75. (Figure 42)

Figure 41. Number of P & I Deaths by Age and Gender, Davidson County, TN, 1997



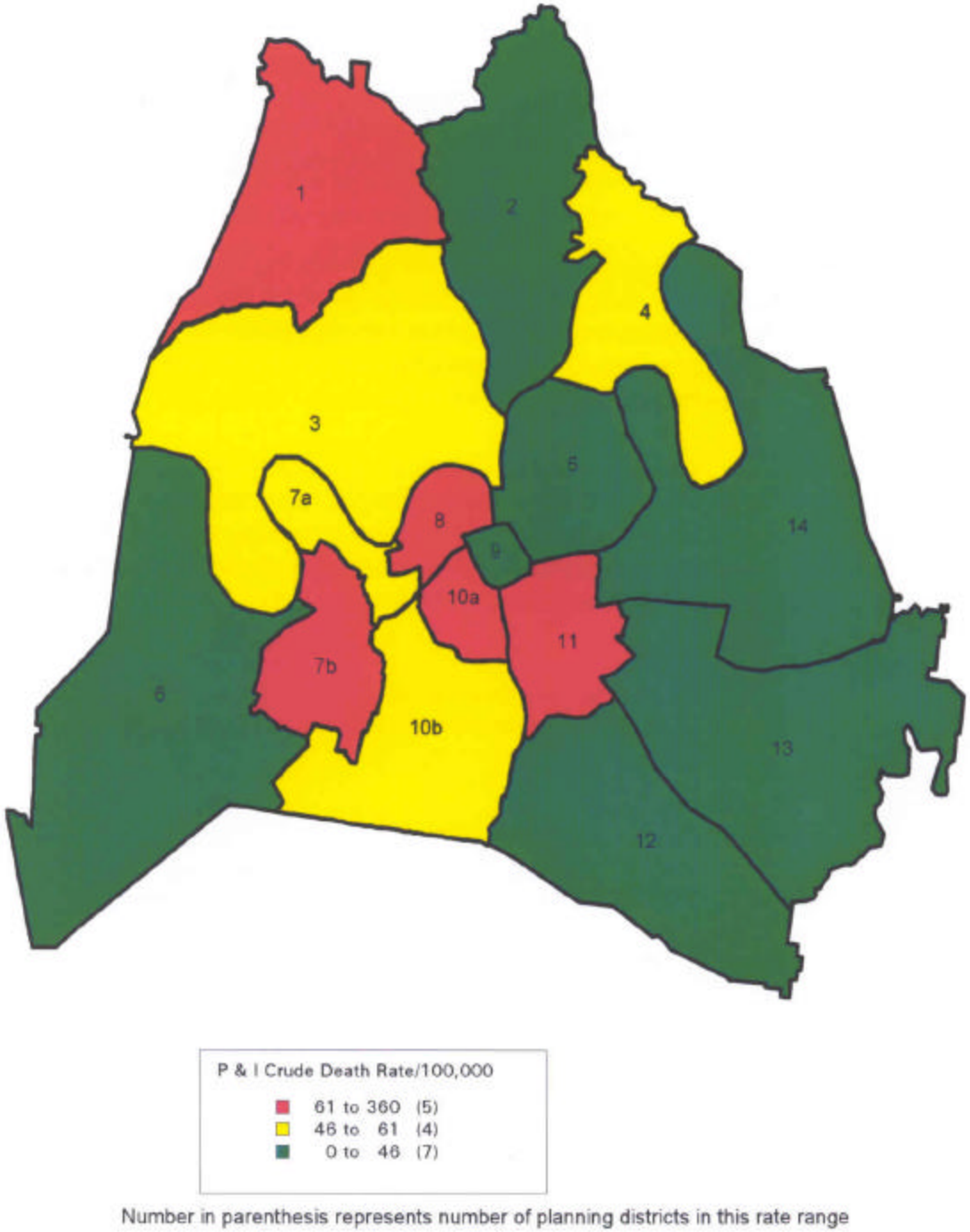
P & I killed four Davidson County residents each week in 1997.

Figure 42. Number of P & I Deaths by Age and Race, Davidson County, TN, 1997



Map 9 displays that the P & I crude mortality rate was high in planning districts 1, 7b, 8, 10a, and 11. Due to the small number of P & I deaths at the planning district level, it is not technically feasible to produce reliable rates from age adjustment. The rates at the planning district level are crude mortality rates. Therefore, comparison of the rates among planning districts should be done with caution.

Map 9. P & I Crude Death Rates by Planning Districts, Davidson County, TN, 1997



Number in parenthesis represents number of planning districts in this rate range

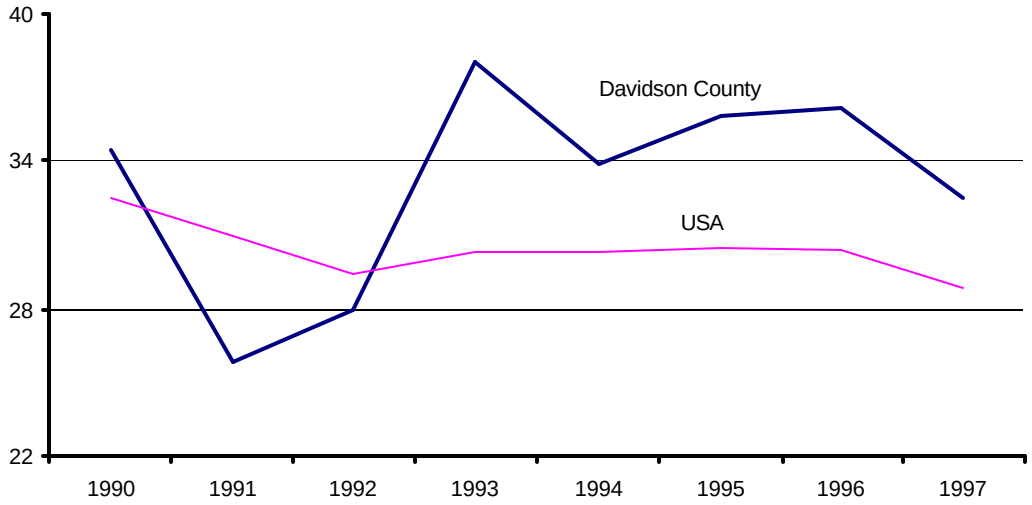
Unintentional Injuries (ICD-9 E800-E949)

Unintentional injuries (also called "accidents and adverse effects") are any unintentional damage to the body resulting from acute exposure to thermal, mechanical, electrical, or chemical energy or from the absence of such essentials as heat or oxygen. (16) Motor vehicle crashes account for approximately half the deaths from unintentional injuries. Falls rank second, followed by poisoning, drowning and residential fires. (17)

Unintentional injuries is the sixth leading cause of deaths in Davidson County, TN, the fifth leading cause of deaths in State of Tennessee and the United States in 1997. Unintentional injuries, however, were the leading cause of deaths for all those age 1 to 14, and the second leading cause for those age 15 to 44 in Davidson County, TN.

Unintentional injury is also a major cause of morbidity and disability. For every injury death, there are about 19 hospitalizations, 233 emergency department visits (almost 40 million annually) and 450 office-based physician visits for injuries. Overall, estimated lifetime costs of unintentional injuries in 1985 exceeded $157.6 billion. (18)

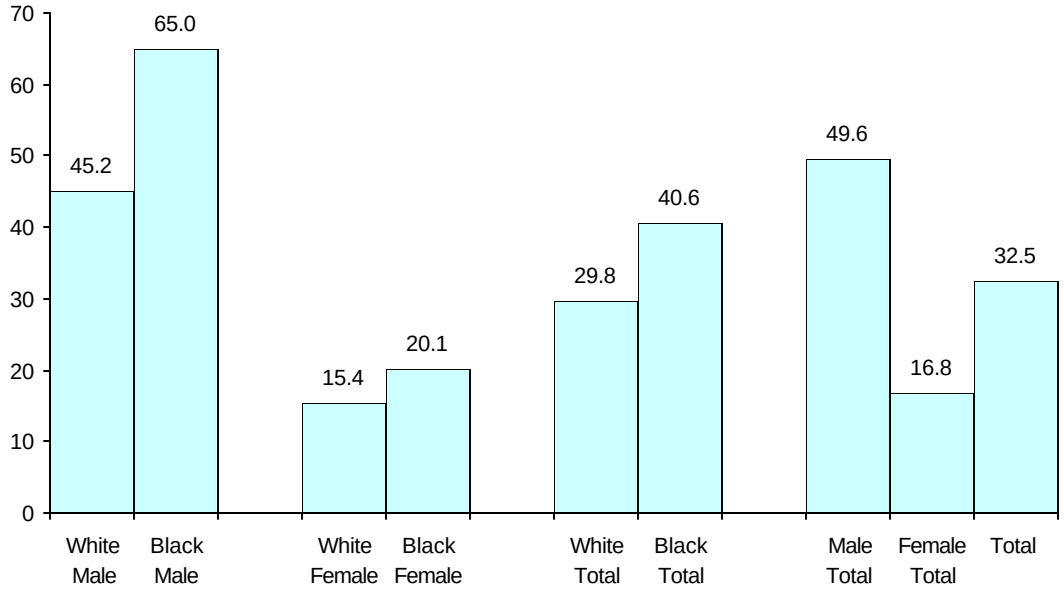
Figure 43. Unintentional Injuries, Age-adjusted Rate/100,000 Persons, Davidson County, TN and United States, 1990-1997



Unintentional injury mortality rates show a characteristic pattern by age, gender, and race. For all racial groups, males consistently have higher death rates than do females. Among males, the black population had higher mortality . Increased unintentional injury death rates in males have been attributed to aggressive, risk-taking behavior, exposure to motor vehicles, drinking, and drug use. (16)

In 1997 the age adjusted unintentional injury mortality rate was 32.5 per 100,000 persons in Davidson County, TN. Overall, the age adjusted death rate for unintentional injuries in Davidson County, TN was 36.2% higher for blacks than it was for whites. (Figure 44)

Figure 44. Unintentional Injuries, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997



The gender difference, however, was much larger than the racial difference. The death rate from unintentional injuries for males was almost three times as high as that for females. The death rate among white males was almost three times that of white females. The rates for black males was more than three times that of black females. Difference in unintentional injury death rates for black and white females were less than those found among males . The rate in black females was 30.5% higher than that of white females . As for males, black males showed 43.8% higher unintentional injury mortality rates than did white males. (Figure 44)

Unintentional injury deaths occurred in all age groups, as seen in Figure 45. In 1997, unintentional injury mortality began to increase in the age group 15-24, and it never leveled off. More than half of the unintentional injury deaths occurred in persons who were age 15-54, and more than 40% of the unintentional injury deaths occurred in persons who were age 55 and above. Together, 93.7% of the unintentional injury deaths occurred in persons who were 15 years of age and older.

Figure 45. Number of Unintentional Injury Deaths by Age, Davidson County, TN, 1997

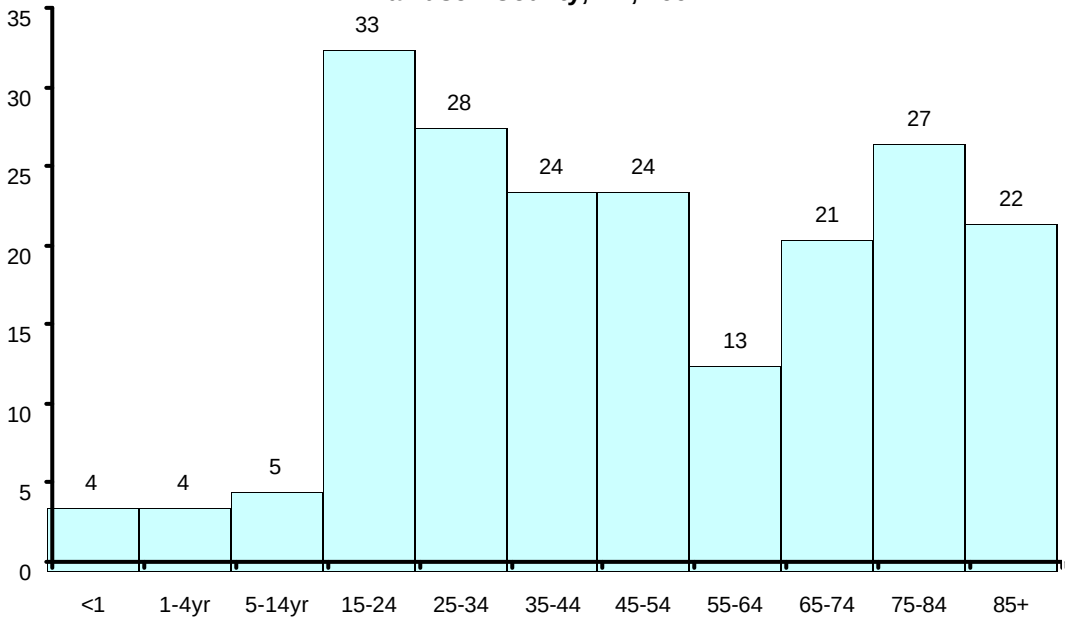
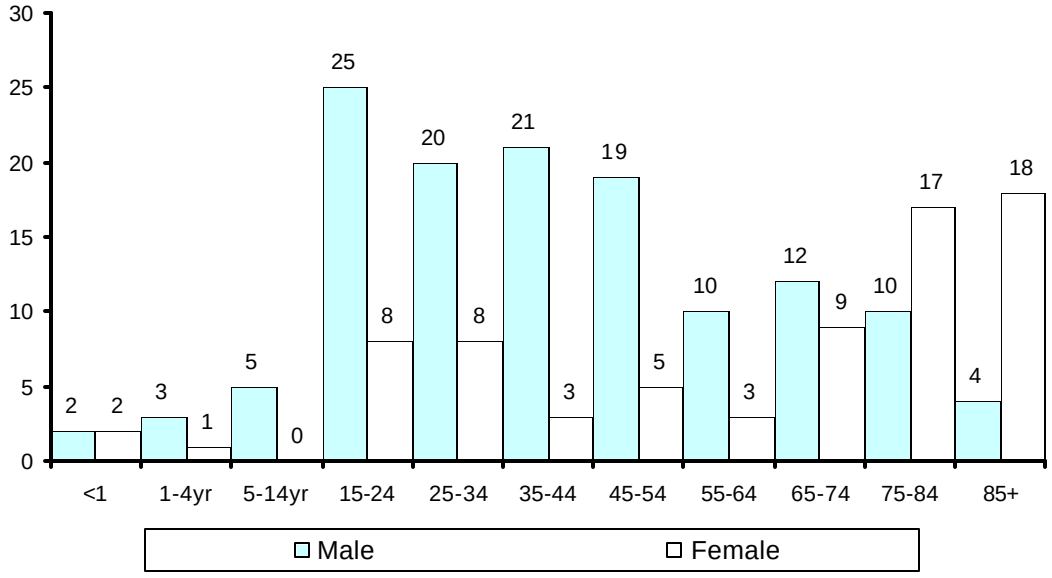


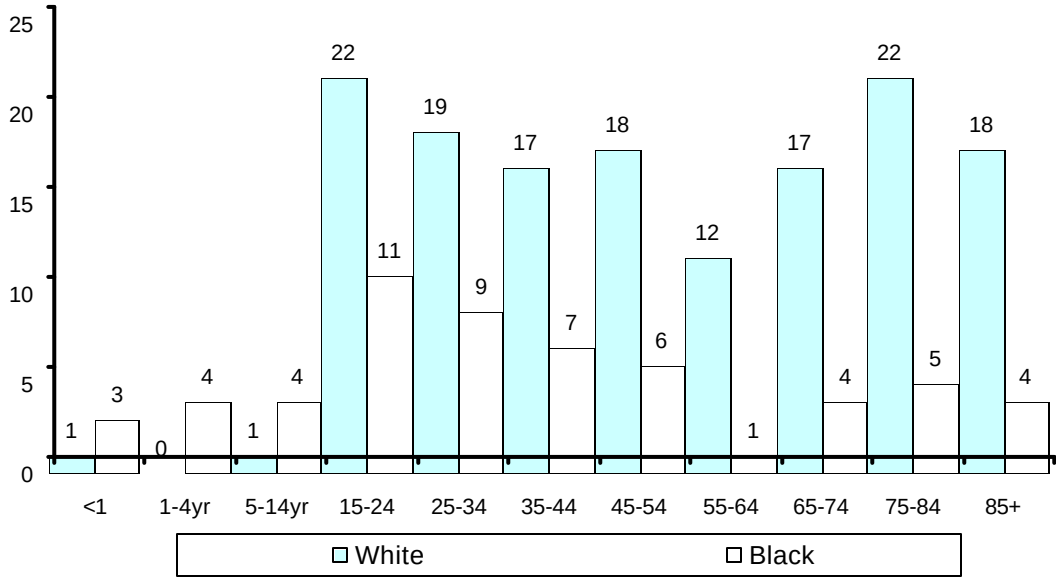
Figure 46 reveals gender and age characteristics of 1997 unintentional injury mortality in Davidson County, TN. For males, a major increase and the peak of unintentional injury deaths occurred in the age group 15-24 while for females, unintentional injury deaths increased at the age 15-24 and peaked at the age group 85+.

For whites, unintentional injury deaths began to increase at the age group 15-24. For blacks, unintentional injury deaths had a disproportionately high level before age 45. (Figure 47)

Figure 46. Number of Unintentional Injury Deaths by Age and Gender, Davidson County, TN, 1997

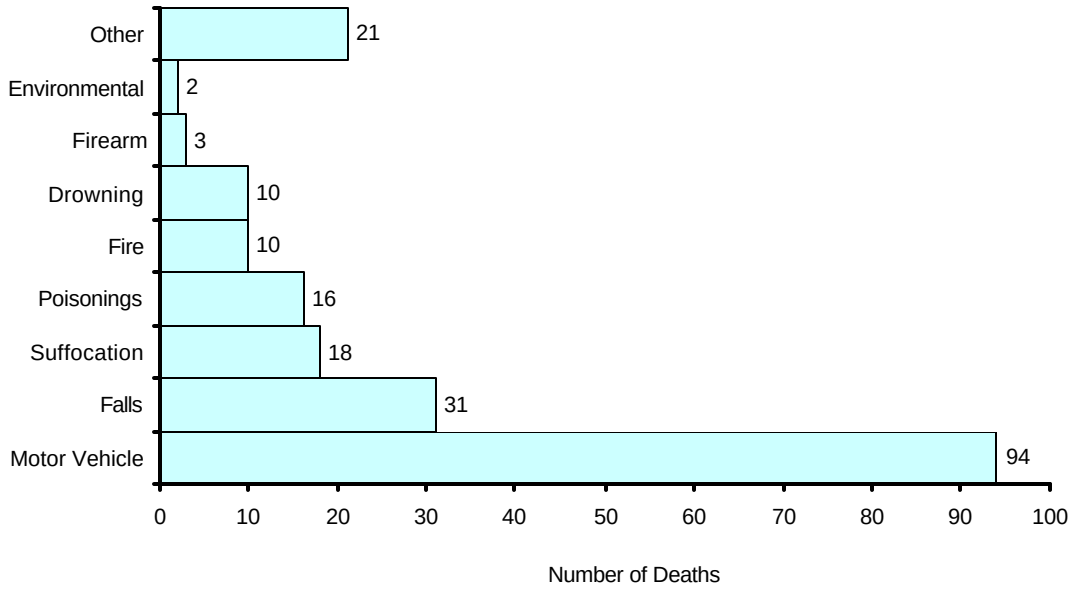


Figurre 47. Number of Unintentional Injury Deaths by Age and Race, Davidson County, TN, 1997



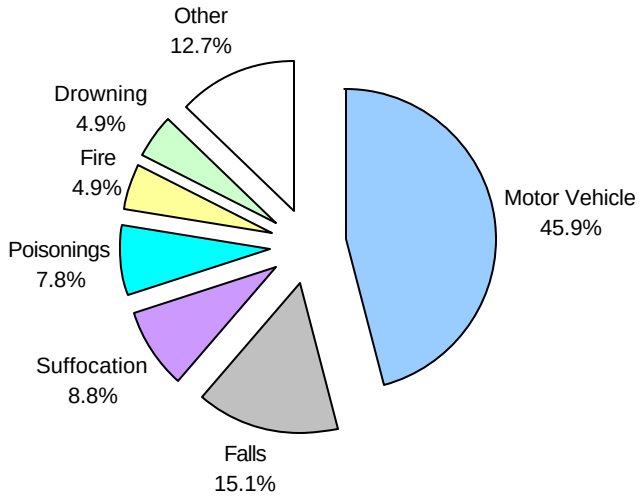
From Figure 48, it is clear that motor vehicle traffic injuries was the leading cause of injury death in Davidson County TN. In 1997, motor vehicle injury deaths acounted for 45.9% of all unintentional injury deaths. Falls were the second leading cause of unintentional injury deaths, accounting for 15.1% of all unintentional injury deaths. Suffocation was the third leading cause of unintentional injury deaths, accounting for 8.8% of all unintentional injury deaths. (Figures 48, 49)

Figure 48. Unintentional Injury Deaths by Types, Davidson County, TN, 1997



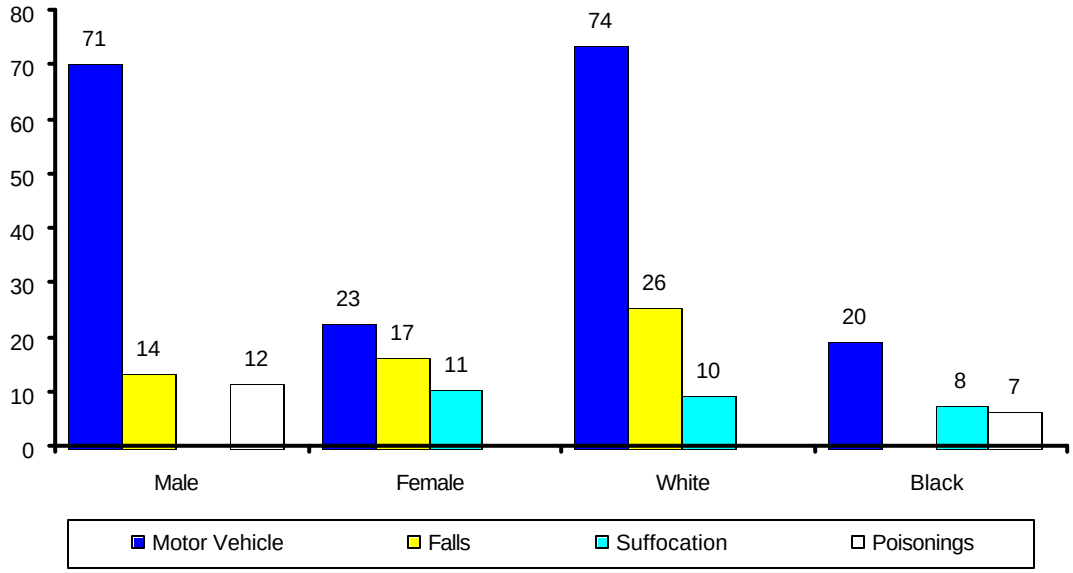
Alcohol is involved in many injuries, including 40% of all deaths due to motor vehicle crashes and about 40% of deaths in residential fires. (19)

Figure 49. Percentage of Each Type of Unintentional Injury Deaths, Davidson County, TN, 1997



From Figure 50, we can see the top three types of unintentional injury deaths by gender and race. For males, the three leading causes of unintentional injury deaths were motor vehicle crashes, falls, and poisonings; for females, they were motor vehicle crashes, falls, and suffocation. For whites, the three leading causes of unintentional injury deaths were motor vehicle crashes, falls, and suffocation. For blacks, they were motor vehicle crashes, poisonings, and suffocation.

Figure 50. Number of Deaths, Three Leading Types of Unintentional Injuries by Gender and Race, Davidson County, TN, 1997

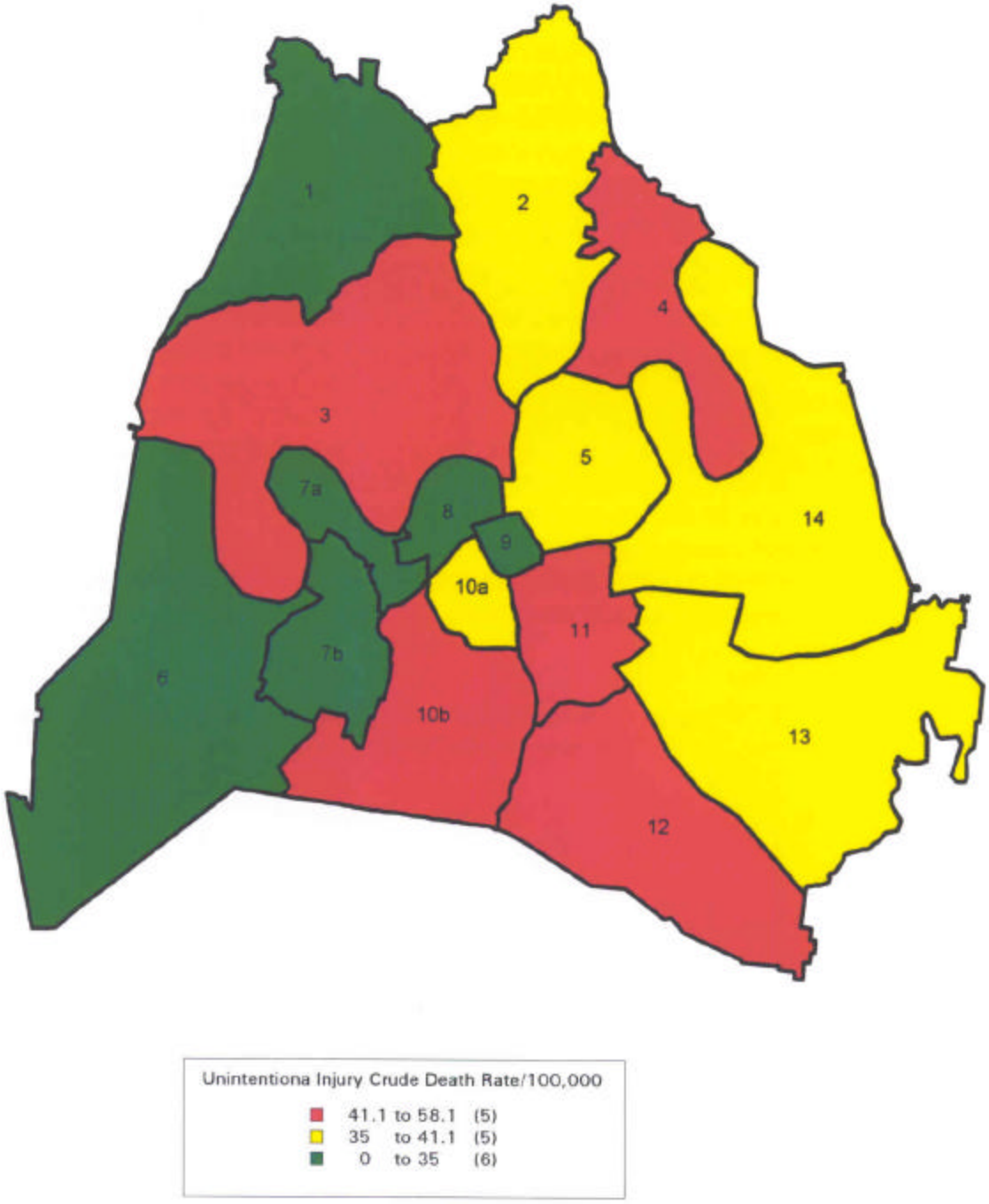


Map 10 on the next page shows that unintentional injury crude mortality rate was high in planning districts 3, 4, 10b, 11, and 12. Due to small number of unintentional injury deaths at the planning district level, it is not technically feasible to produce reliable rates from age adjustment. The rates at the planning district level are crude mortality rate. Therefore, comparison of the rates among planning districts should be with caution.

Each year over 600,000 people are treated in emergency departments for bicycle-related injuries and 824 die from this type of injury.

Every 40 seconds someone in the US seeks medical care because of a dog bite. (19)

Map 10. Unintentional Injury Crude Death Rates by Planning Districts, Davidson County, TN, 1997



Number in parenthesis represnts number of planning districts in this rate range

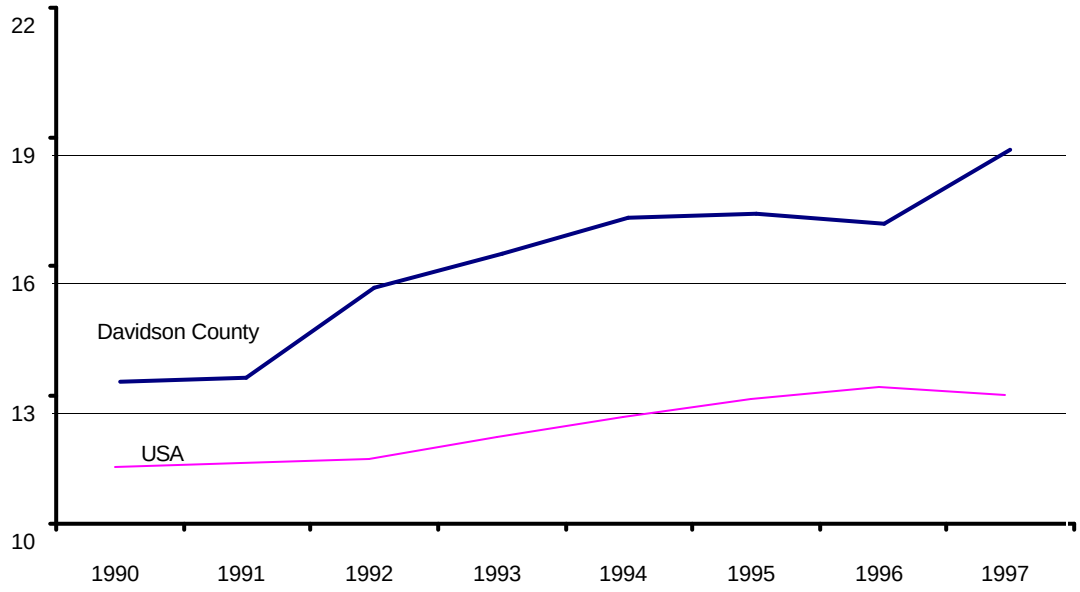
Diabetes Mellitus (ICD-9 250)

Diabetes Mellitus is a group of diseases in which the body is unable to sufficiently produce and/or properly use insulin, a hormone needed by muscle, fat, and the liver to utilize glucose. Four major types of diabetes have been defined: insulin-dependent diabetes mellitus (IDDM), non-insulin-dependent diabetes mellitus (NIDDM), gestational diabetes mellitus (GDM), and diabetes secondary to other conditions. (5, 20)

Almost every one of us knows someone who has diabetes. An estimated 16 million people in the United States have diabetes mellitus, a serious, lifelong condition. About half of these people do not know they have diabetes and are not under care for the disorder. Each year, about 798,000 people are diagnosed with diabetes. Although diabetes occurs most often in older adults, it is one of the most common chronic disorders in children in the United States. About 123,000 children and teenagers age 19 and younger have diabetes. (21)

In 1993, there were approximately 7.8 million diagnosed cases of diabetes in the United States. Mortality rates for IDDM patients are 5-7

Figure 51. Dabetes Mellitus, Age-adjusted Rate/100, 000 Persons, Davidson County, TN and United States, 1990-1997



times that of the general U.S. population for males and 9-12 times higher for females. In addition to death, disability affects large numbers of people with diabetes in the United States. (20) The economic impact of diabetes is substantial. Diabetes cost the United States $98 billion in 1997. Indirect costs, including disability payments, time lost from work, and premature death, totaled $54 billion; medical costs for diabetes care, including hospitalizations, medical care, and treatment supplies, totaled $44 billion. (21, 22)

Diabetes has been ranked among the ten leading causes of death in the United States since 1932. (22) In 1997, diabetes mellitus was the seventh leading cause of deaths in Davidson County, TN, State of Tennessee and the United States.

Between 1990 and 1997, the age adjusted death rate for diabetes increased approximately 15% in the United States and 41% in Davidson County, TN. (Figure 51) As a result, average age adjusted mortality for diabetes in Davidson County was 27.1% higher than that of the United States.

Figure 52. Diabetes Mellitus, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997

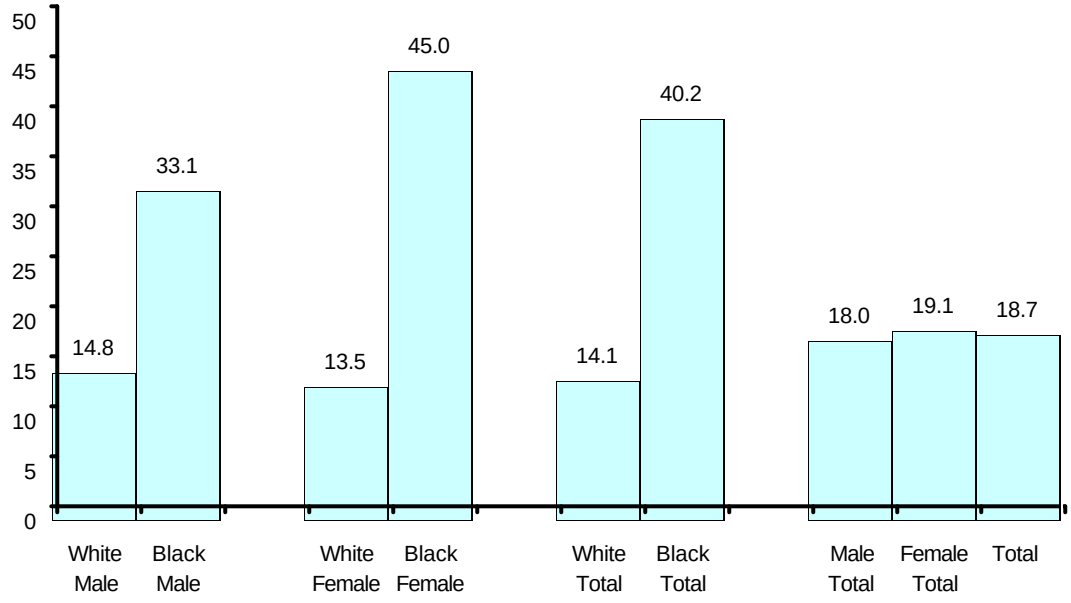
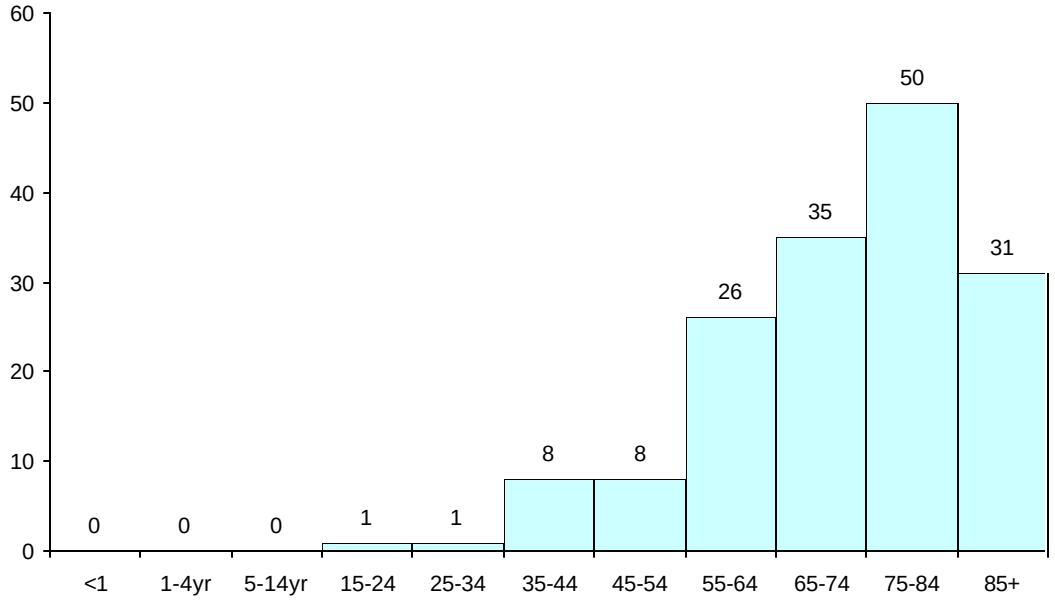


Figure 52 reveals that during 1997 the age adjusted diabetes mortality rate was 18.7 per 100,000 persons. Overall, the age adjusted death rate for diabetes in Davidson County, TN was 185.1% higher for

blacks than it was for whites, and 6% higher for females than it was for males. The rate was 123.6% higher for black males than it was for white males. Black females had the highest diabetes death rates (45 deaths per 100,000 persons) while white females had the lowest rate .(13.5)

Like many leading causes of death, diabetes mortality increases with age. In 1997, 72.5% of diabetes deaths occurred in persons who were age 65 and older in Davidson County, TN. (Figure 53)

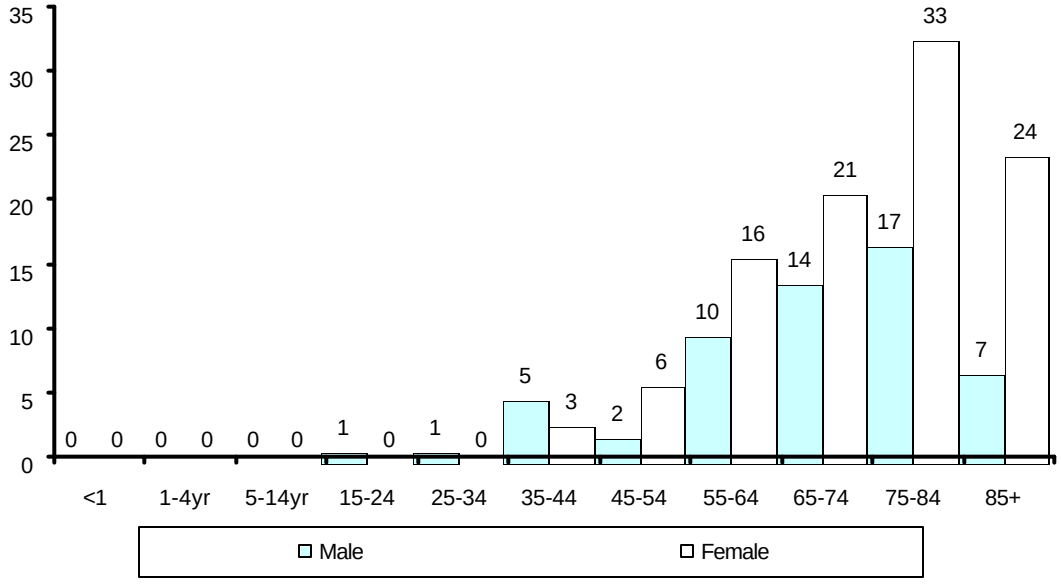
Figure 53. Number of Diabetes Deaths by Age, Davidson County, TN, 1997



Diabetes is widely recognized as one of the leading causes of death and disability in the United States. (20)

Figure 54 displays that in 1997diabetes deaths began to occur at 15-24 years of age in males while it delayed to occur until 35-44 years of age in females in Davidson County, TN. However, beginning at 45-54 years of age, diabetes deaths were much higher in females than in males. Overall, the number of diabetes deaths in females was almost twice than that of males.

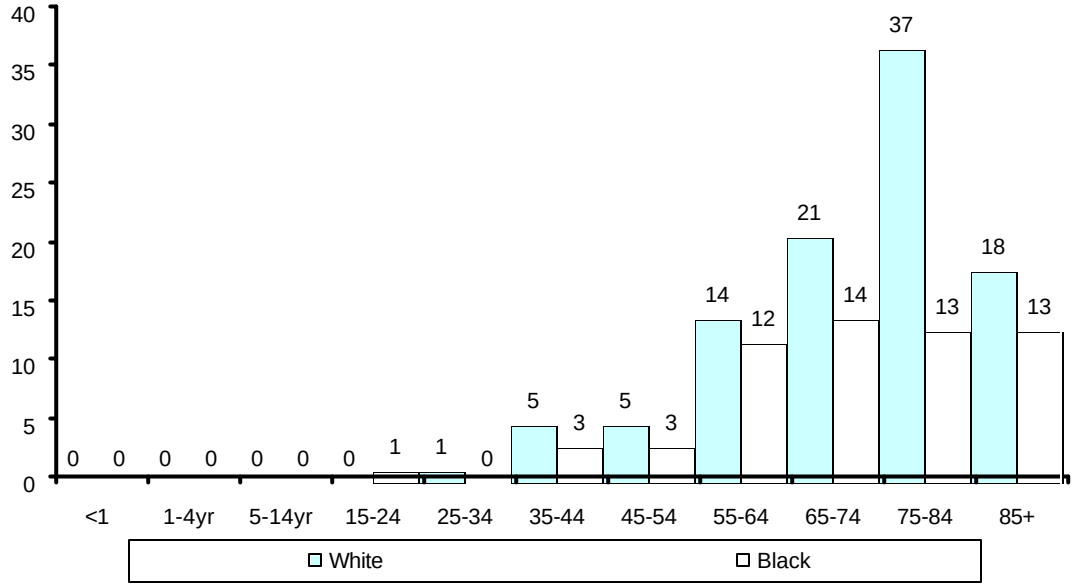
Figure 54. Number of Diabetes Deaths by Age and Gender, Davidson County, TN, 1997



Diabetes is associated with long-term complications that affect almost every major part of the body. It contributes to blindness, heart disease, stroke, kidney failure, amputation, and nerve damage. Uncontrolled diabetes can complicate pregnancy, and birth defects are more common in babies born to women with diabetes. (21)

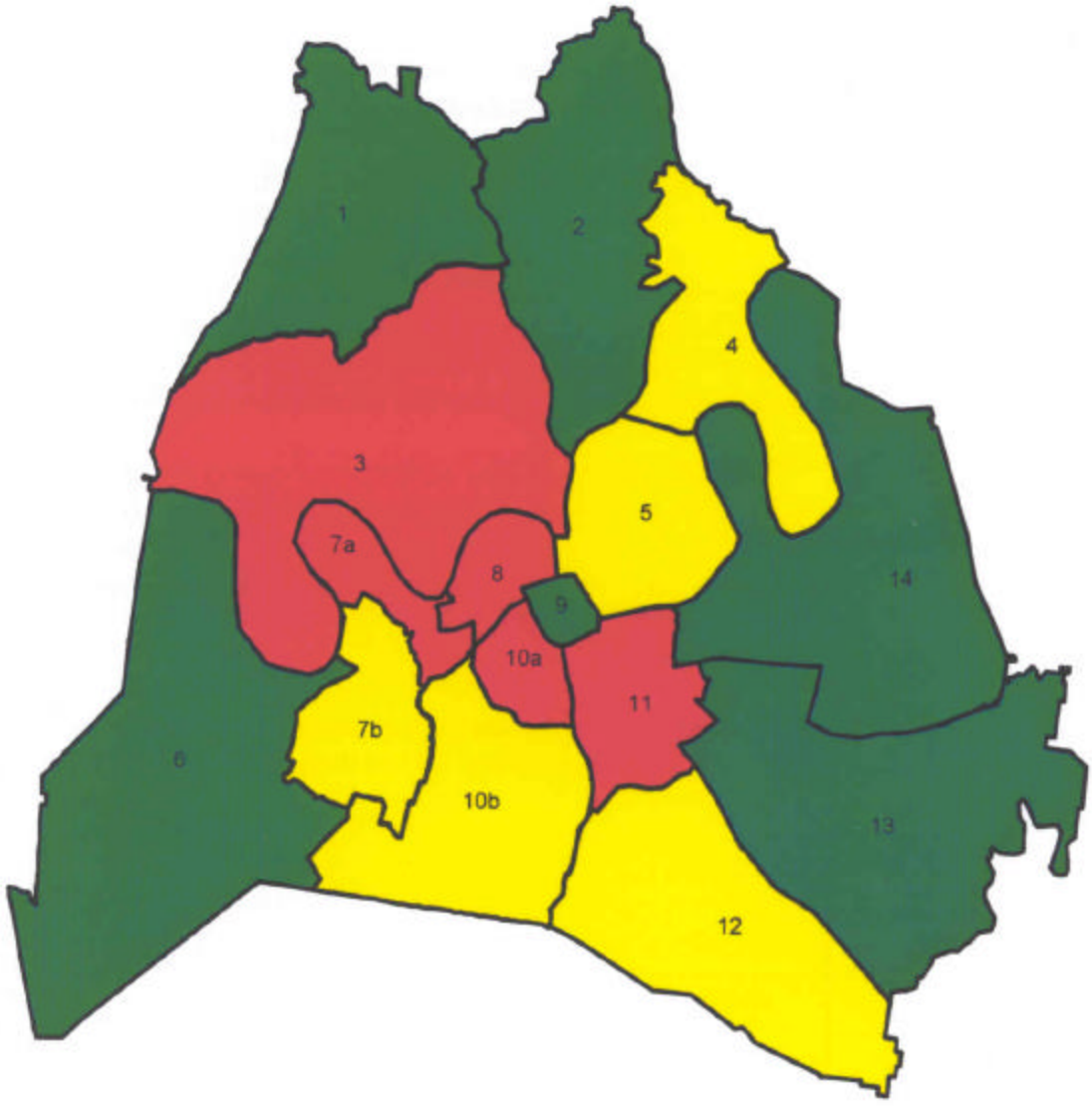
For whites, diabetes deaths began to occur at 15-24 years of age while for blacks it started to occur at 25-34 years of age. Although whites had large numbers of diabetes deaths, diabetes deaths were disproportionately high in the black population in Davidson County, TN. (Figure 55)

Figure 55. Number of Diabetes Deaths by Age and Race, Davidson County, TN, 1997



Map 11 on the next page displays that the diabetes crude mortality rate was high in planning districts 3, 7a, 8, 10a, and 11. Due to the small number of diabetes deaths at the planning district level, it is not technically feasible to produce reliable rates from age adjustment. The rates at the planning district level are crude mortality rates. Therefore, comparison of the rates among planning districts should be done with caution.

Map 11. Diabetes Mellitus Crude Death Rates by Planning Districts, Davidson County, TN, 1997



Number in parenthesis represents number of planning districts in this rate range

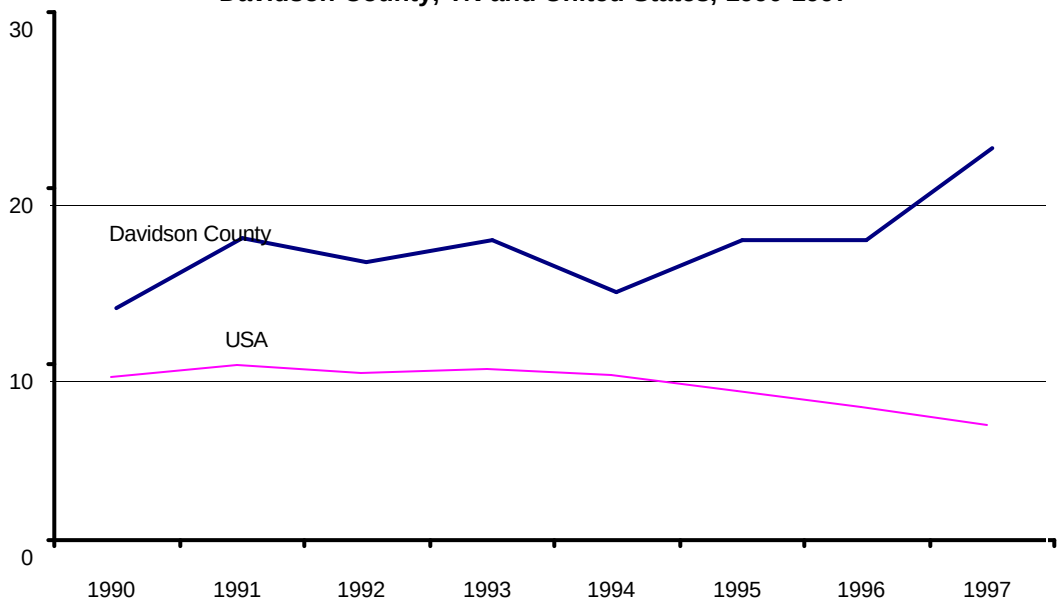
Homicide (ICD-9 E960-E978)

Homicide is death caused by injuries inflicted by one person with intent to injure or kill another by any means. Homicide can be classified as criminal or noncriminal, which includes death caused by negligence and those committed in self-defense. (23)

Assaultive violence, including homicide, has only recently been recognized as an important public health problem. The public health approach suggests that homicide and other types of assault are concerns to be addressed and remedied, not accepted as inalterable facts of life. A public health approach to the problem of assaultive violence is to establish a framework for developing relevant information through epidemiology and then transfer that information into effective action. (23)

Homicides generally do not occur during the commission of a crime but arise from arguments and other noncriminal circumstances. Most homicides occur among members of the same race and usually involve firearms. Alcohol and drug consumption are associated with

Figure 56. Homicide, Age-adjusted Rate/100,000 Persons, Davidson County, TN and United States, 1990-1997



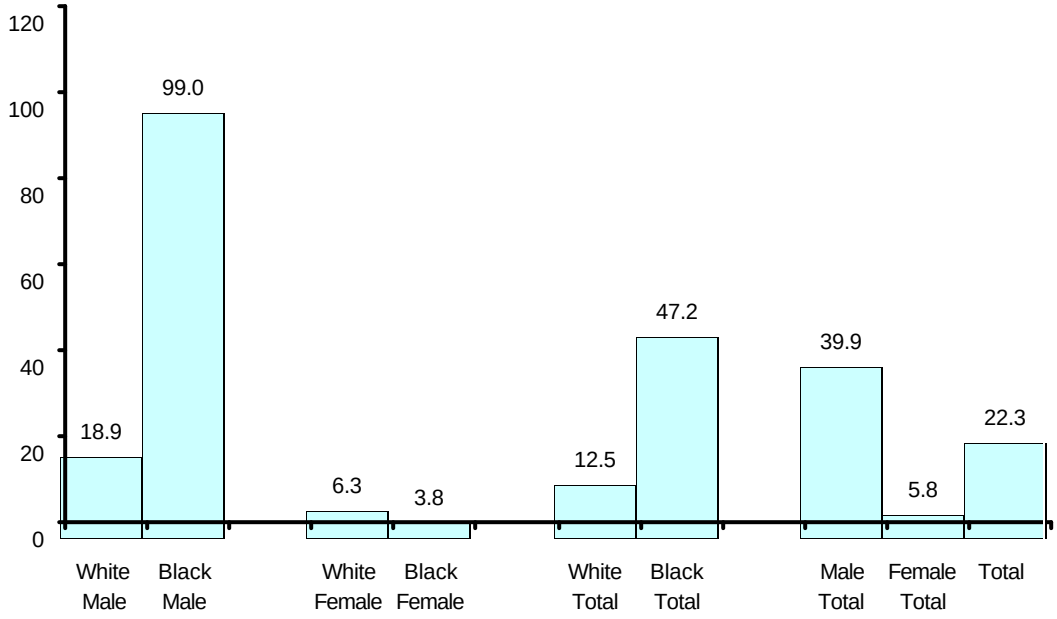
homicide. Homicide is far more prevalent among minorities, males, and the young. While homicide is the fatal outcome of assaultive behaviors, the ratio of nonfatal assaults to homicide is probably far greater than 100: 1. (16, 23)

The homicide rate in the United States increased sharply between 1985 and 1991 and then began to decline in 1992. (24) Between 1990 to 1997, the age adjusted homicide death rate declined 26% in the United States. However, it increased 69% in Davidson County, TN. (Figure 56) As a result, the average age adjusted homicide mortality in Davidson County was 70.3% higher than that of the United States,

In 1997 homicide ranked as the 13th leading cause of death in the United States overall, the 2nd leading cause of death among persons 15-24 years of age, the 3rd leading cause among persons 5-14 years of age, and the 4th leading cause among persons 1-4 years of age.

In Davidson County, TN, homicide was the 8th leading cause of death overall, and the leading cause of death among persons 15-24 years of age, and the 2nd leading cause among persons 25-44 years of age. It was the leading cause of years of productive life lost among persons 15-24 and 25-34 years of age in 1997.

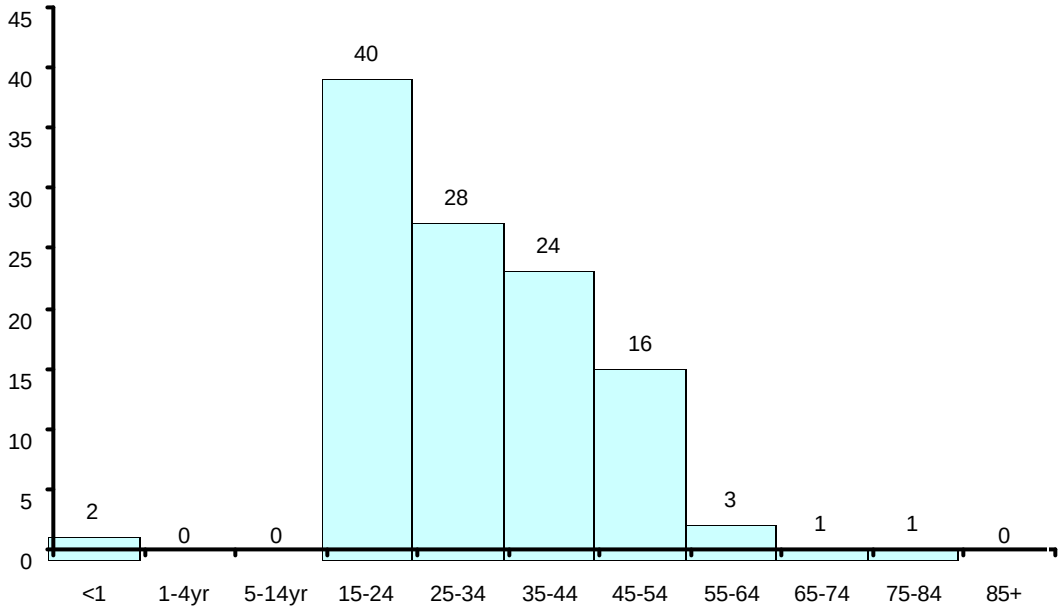
Figure 57. Homicide, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997



In Figure 57 one can see that in 1997 the age adjusted homicide mortality rate was 22.3 per 100,000 persons. The homicide rate was 587.9% higher in males than in females. It was 277.6% higher in blacks than in whites. Black males had the highest homicide mortality rates (99.0) while black females had the lowest rate. (3.8)

In 1997, homicide numbers in Davidson County peaked with those 15-24 years of age and declined after 45-54 years of age. Approximately 94% of homicides occurred in persons who were age 15-54 in Davidson County, TN. (Figure 58)

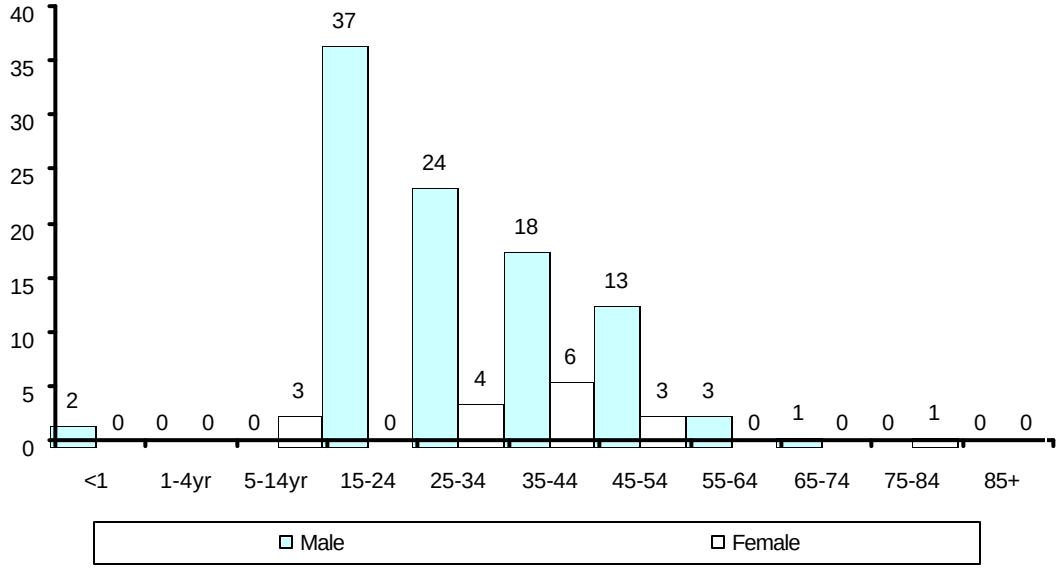
Figure 58. Number of Homicide Deaths by Age, Davidson County, TN, 1997



The homicide rate among males 15-24 years old in the US is 10 times higher than in Canada, 15 times higher than in Australia, and 28 times higher than the rate in France or in Germany. (25)

Figure 59 clearly demonstrates that in 1997 homicides occurred predominately among the male population in Davidson County, TN. Eighty-five percent of all homicides occurred in males, and 80% of male homicides occurred in those 15-54 years of age.

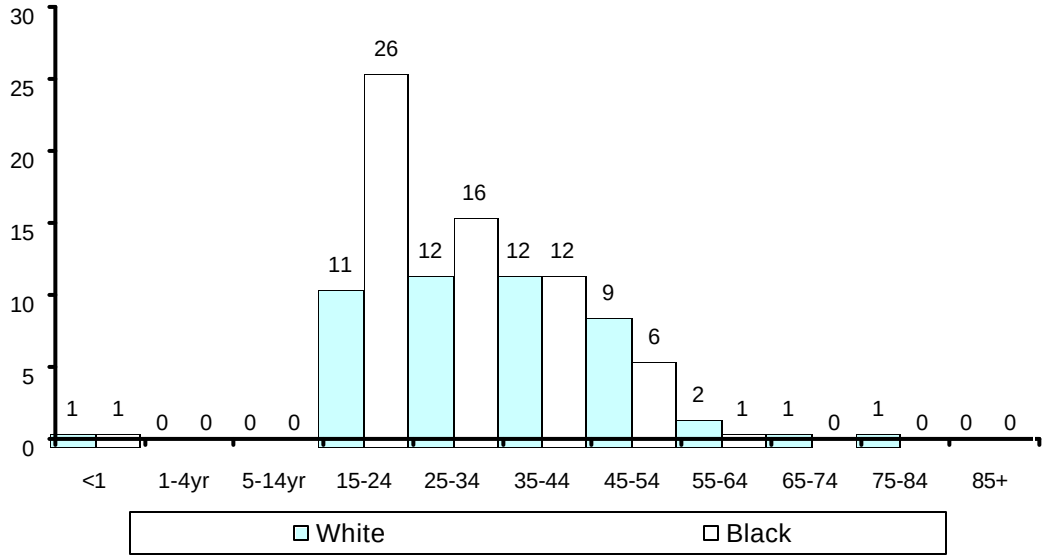
Figure 59. Number of Homicide Deaths by Age and Gender, Davidson County, TN, 1997



Homicide is a public health problem because of its tremendous impact on the health and well-being of our youth. Arrest rates for homicide among youth 14-17 years of age increased 41% between 1989 and 1994, compared to an increase of 18% for youth 18-24 years of age. Homicide arrest rates decreased 19% for adults over 25 years of age during the same time period. (25)

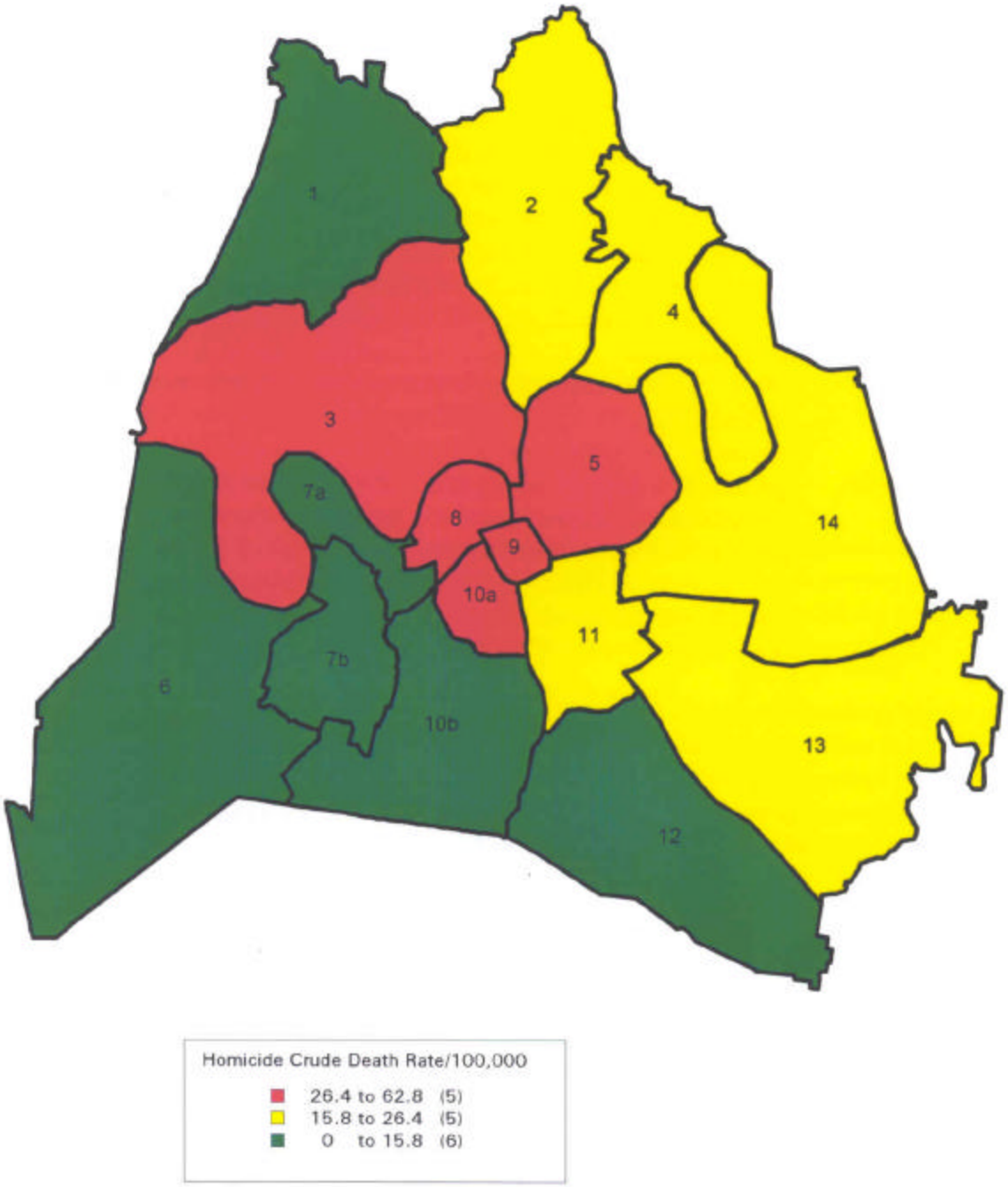
In Davidson County, TN, homicide disproportionately occurred in the black population. Of 115 homicides in 1997, 53.9% (62 victims) were blacks. Blacks accounts for 25% of Davidson County's population. (Figure 60)

Figure 60. Number of Homicide Deaths by Age and Race, Davidson County, TN, 1997



Map 12 on the next page shows that the homicide crude mortality rate was high in planning districts 3, 5, 8, 9, and 10a. Due to the small number of homicide deaths at the planning district level, it is not technically feasible to produce reliable rates from age adjustment. The rates at the planning district level are crude mortality rates. Therefore, comparison of the rates among planning districts should be done with caution.

Map 12. Homicide Crude Death Rates by Planning Districts, Davidson County, TN, 1997



Number in parenthesis represents number of planning districts in this rate range

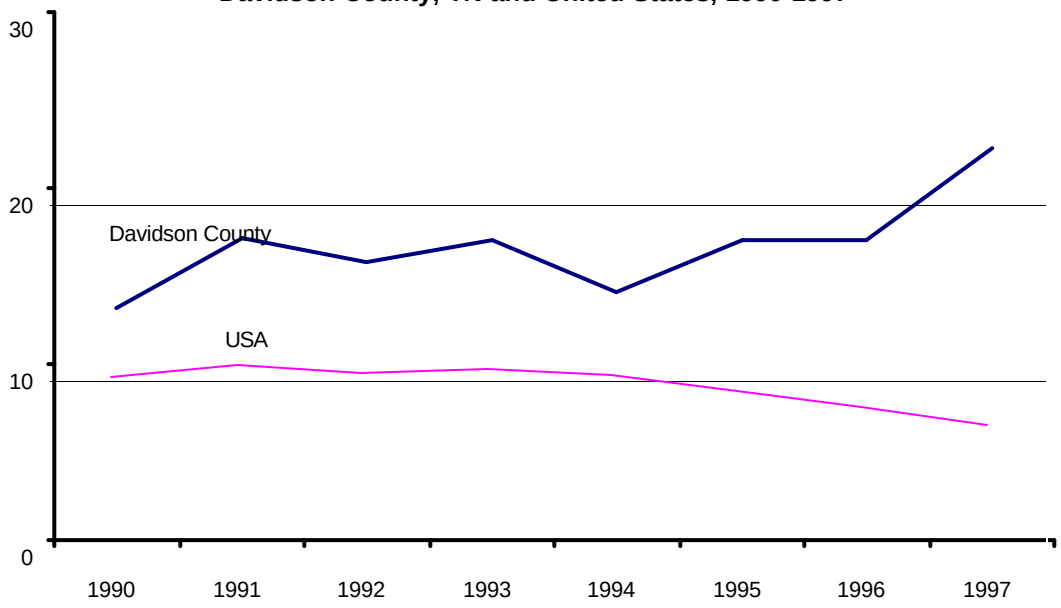
Homicide (ICD-9 E960-E978)

Homicide is death caused by injuries inflicted by one person with intent to injure or kill another by any means. Homicide can be classified as criminal or noncriminal, which includes death caused by negligence and those committed in self-defense. (23)

Assaultive violence, including homicide, has only recently been recognized as an important public health problem. The public health approach suggests that homicide and other types of assault are concerns to be addressed and remedied, not accepted as inalterable facts of life. A public health approach to the problem of assaultive violence is to establish a framework for developing relevant information through epidemiology and then transfer that information into effective action. (23)

Homicides generally do not occur during the commission of a crime but arise from arguments and other noncriminal circumstances. Most homicides occur among members of the same race and usually involve firearms. Alcohol and drug consumption are associated with

Figure 56. Homicide, Age-adjusted Rate/100,000 Persons, Davidson County, TN and United States, 1990-1997



homicide. Homicide is far more prevalent among minorities, males, and the young. While homicide is the fatal outcome of assaultive behaviors, the ratio of nonfatal assaults to homicide is probably far greater than 100: 1. (16, 23)

The homicide rate in the United States increased sharply between 1985 and 1991 and then began to decline in 1992. (24) Between 1990 to 1997, the age adjusted homicide death rate declined 26% in the United States. However, it increased 69% in Davidson County, TN. (Figure 56) As a result, the average age adjusted homicide mortality in Davidson County was 70.3% higher than that of the United States,

In 1997 homicide ranked as the 13th leading cause of death in the United States overall, the 2nd leading cause of death among persons 15-24 years of age, the 3rd leading cause among persons 5-14 years of age, and the 4th leading cause among persons 1-4 years of age.

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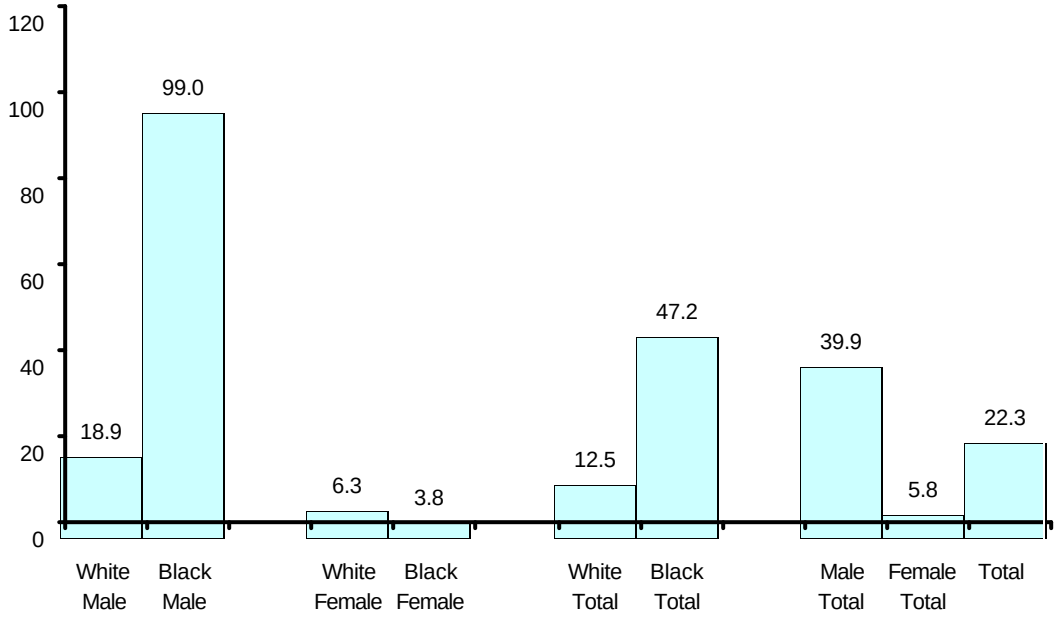
Figure 57. Homicide, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997



In Figure 57 one can see that in 1997 the age adjusted homicide mortality rate was 22.3 per 100,000 persons. The homicide rate was 587.9% higher in males than in females. It was 277.6% higher in blacks than in whites. Black males had the highest homicide mortality rates (99.0) while black females had the lowest rate. (3.8)

In 1997, homicide numbers in Davidson County peaked with those 15-24 years of age and declined after 45-54 years of age. Approximately 94% of homicides occurred in persons who were age 15-54 in Davidson County, TN. (Figure 58)

Figure 58. Number of Homicide Deaths by Age, Davidson County, TN, 1997

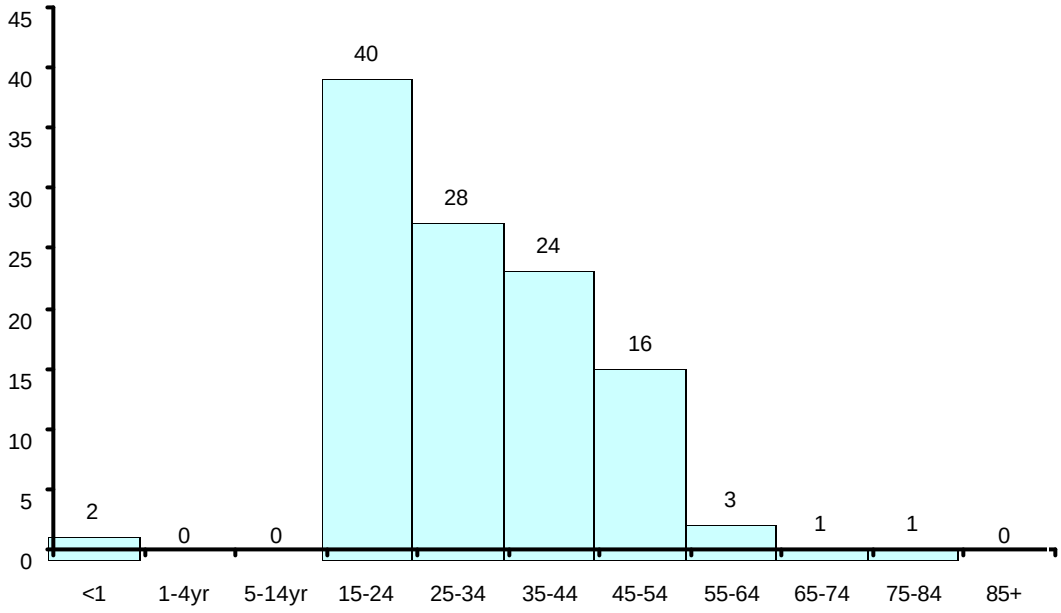


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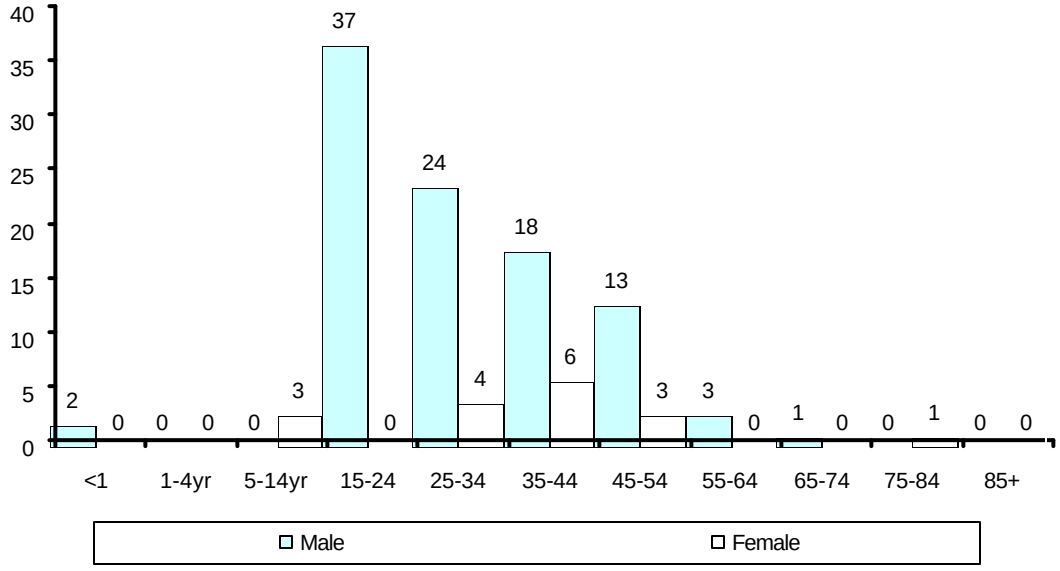
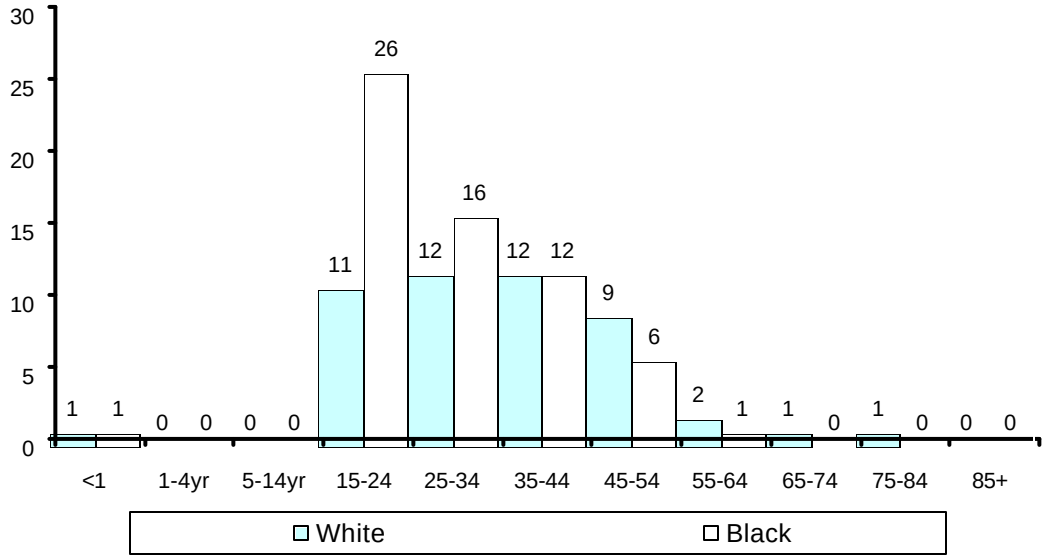
Figure 59. Number of Homicide Deaths by Age and Gender, Davidson County, TN, 1997



Homicide is a public health problem because of its tremendous impact on the health and well-being of our youth. Arrest rates for homicide among youth 14-17 years of age increased 41% between 1989 and 1994, compared to an increase of 18% for youth 18-24 years of age. Homicide arrest rates decreased 19% for adults over 25 years of age during the same time period. (25)

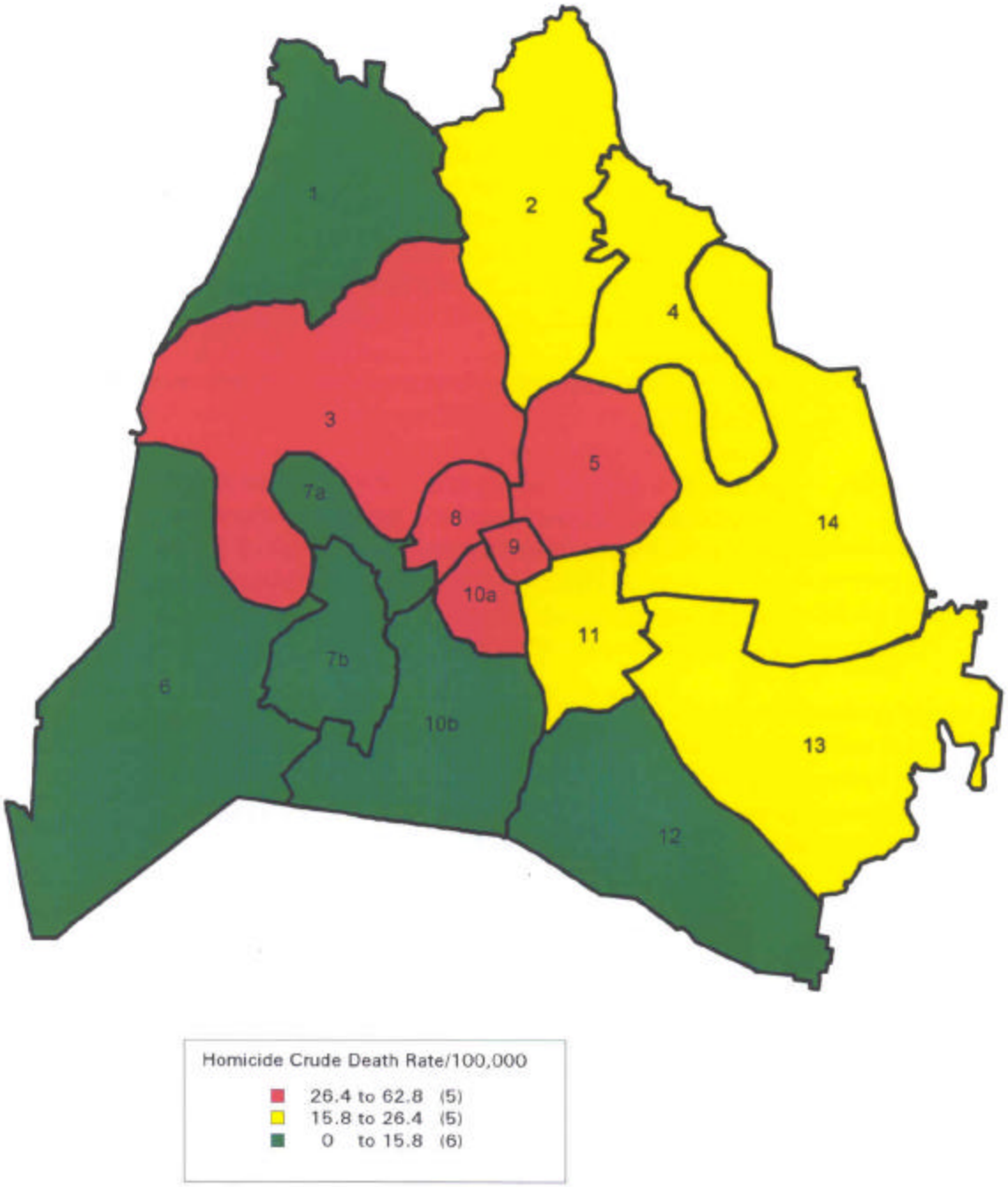
In Davidson County, TN, homicide disproportionately occurred in the black population. Of 115 homicides in 1997, 53.9% (62 victims) were blacks. Blacks accounts for 25% of Davidson County's population. (Figure 60)

Figure 60. Number of Homicide Deaths by Age and Race, Davidson County, TN, 1997



Map 12 on the next page shows that the homicide crude mortality rate was high in planning districts 3, 5, 8, 9, and 10a. Due to the small number of homicide deaths at the planning district level, it is not technically feasible to produce reliable rates from age adjustment. The rates at the planning district level are crude mortality rates. Therefore, comparison of the rates among planning districts should be done with caution.

Map 12. Homicide Crude Death Rates by Planning Districts, Davidson County, TN, 1997



Number in parenthesis represents number of planning districts in this rate range

Suicide (ICD-9 E950-E959)

Suicide is the result of violence directed against self. Unlike the rates for many diseases, suicide rates are substantial among both young and old people. In the last four decades, suicide rates among younger age groups have increased dramatically. In general, males are more than four times as likely to commit suicide as females. White males are at the highest risk of suicide. For both genders, firearms are the most frequently used method of suicide. Overall, approximately 60% of all suicides are committed with firearms. Among males, hanging is the second most common method of suicide, followed by poisoning by gases. Among females, ingestion of an overdose of drugs is the second most common method of suicide. (26)

Clinical depression is the most commonly reported mental illness associated with suicide, followed by alcoholism. Certain personality disorders are correlated with suicidal behavior. There is evidence of a genetic link for risk factors of suicide, such as depression. A variety of situational risk factors for suicide have been identified. In general, stressful life events may elevate the background risk of suicide by a factor of 5 to 10. Being male, elderly, or having a past history of attempted suicide have been clearly shown to increase the risk of suicide. (26)

Figure 61. Suicide, Age-adjusted Rate/100,000 Persons, Davidson County, TN and United States, 1990-1997

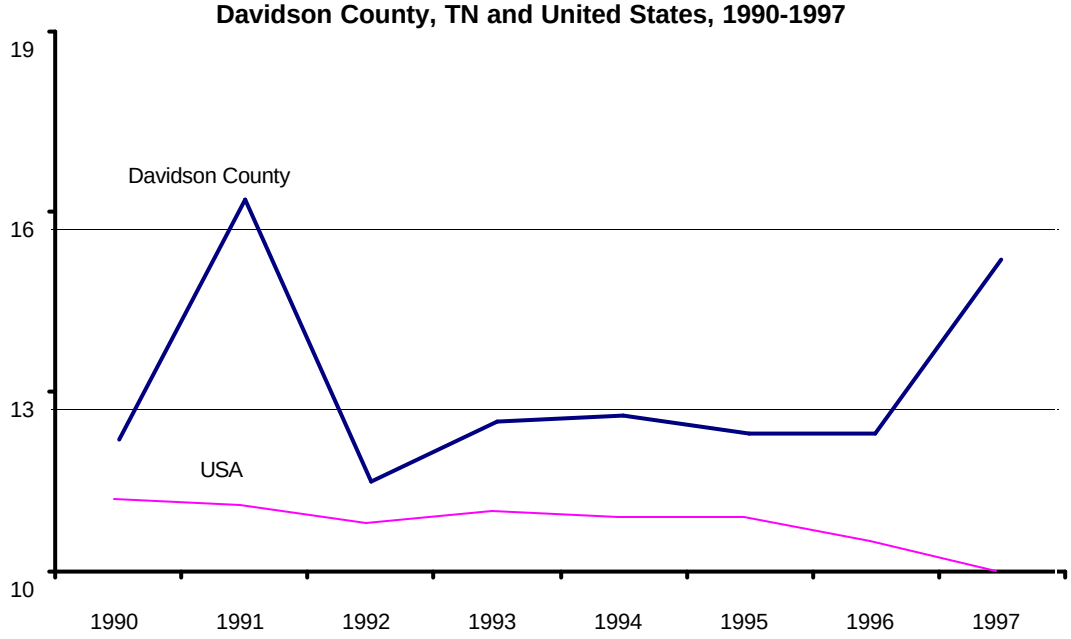
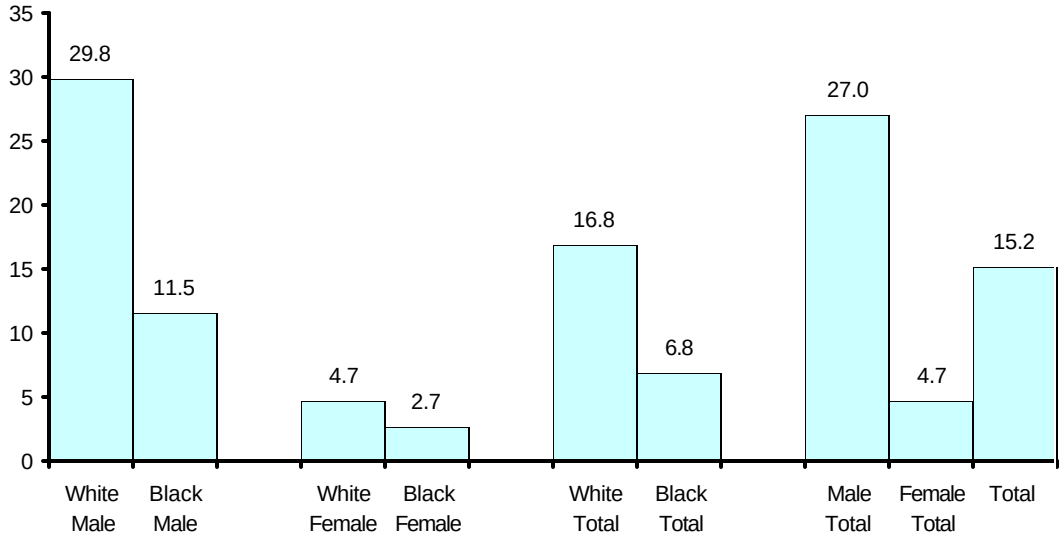


Figure 62. Suicide, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997



In 1997 suicide ranked as the 8th leading cause of death in the United States overall, the 3rd leading cause of death among persons 15-24 years of age, the 4th leading cause among persons 25-44 years of age, and the 5th leading cause among persons 5-14 years of age.

In Davidson County, TN suicide was the 9th leading cause of death overall, the 3rd leading cause of death among persons 5-14 and 15-24 years of age. It was also the 5th leading cause of years of productive life lost overall and the 2nd leading cause of YPLLs among persons 25-34 years of age and the 3rd leading cause of YPLLs among persons 1-14 and 15-24 years of age in 1997.

The average age adjusted suicide mortality rate in Davidson County was 17.6% higher than that of the United States during 1990-1997.

On average, Seven residents in Davidson County, TN committed suicide each month in 1997.

Figure 62 shows that during 1997 the age adjusted suicide mortality was 15.2 per 100,000 persons. Overall, the age adjusted death rate for suicide in Davidson County, TN was 147.1% higher for whites than it was for blacks, and 74.1% higher for females than it was for males. White males had the highest suicide rate (29.8) whereas black females had the lowest rate (2.7) .

In 1997, suicide began to occur at 5-14 years of age and peaked at 25-34 years of age in Davidson County, TN. Most suicides occurred in the adult population. Approximately 85 % of suicide deaths occurred in persons who were age 25 and older in Davidson County, TN in 1997. However, suicide also occurred in young people. Approximately, 15% of suicides in 1997 occurred among persons age 24 and younger. (Figure 63)

Figure 63. Number of Suicide Deaths by Age, Davidson County, TN, 1997

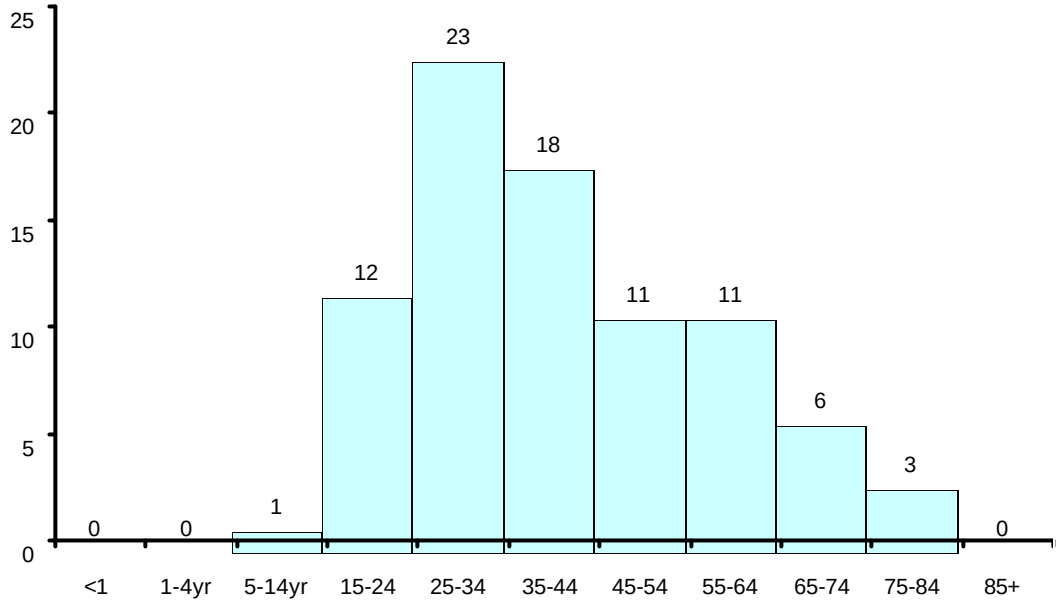
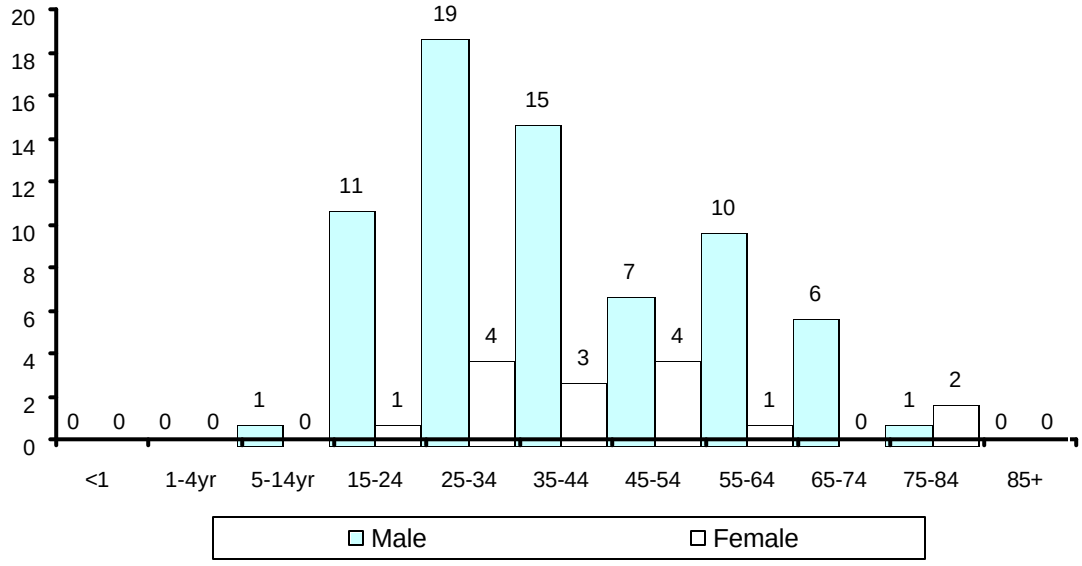


Figure 64 illustrates that in 1997, suicide predominately occurred in males in Davidson County, TN. Males accounted for 82% of all suicide deaths, and 83% of male suicides occurred in persons who were age 25 and older.

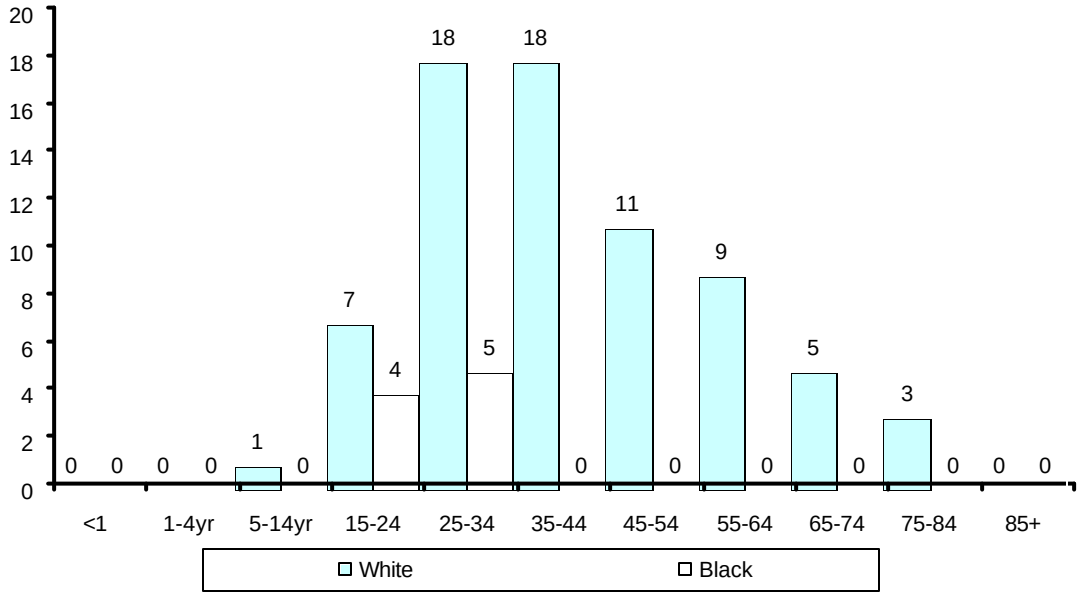
Figure 64. Number of Suicide Deaths by Age and Gender, Davidson County, TN, 1997



In 1997 more people died from suicide than from homicide in the United States (27) whereas more people died from homicide than from suicide in Davidson County, TN.

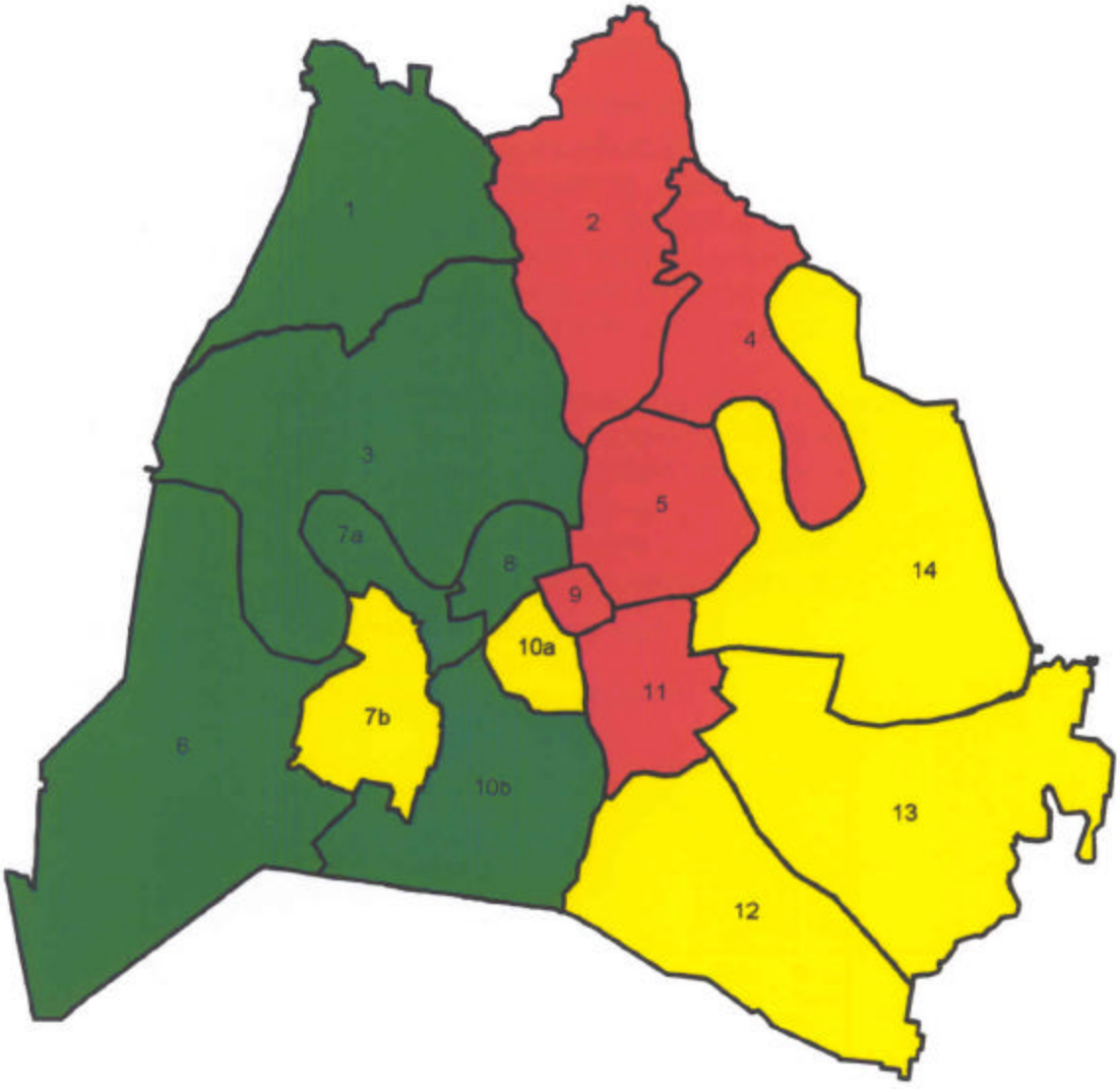
It is clear from Figure 65 that suicide occurred predominately in whites. Whites accounted for 85% of Davidson County's suicide deaths, and 89% of white suicides occurred among persons age 25 and older.

Figure 65. Number of Suicide Deaths by Age and Race, Davidson County, TN, 1997



Map 13 on the next page shows that the suicide crude mortality rate was high in planning districts 2, 4, 5, 9, and 11. Due to the small number of suicide deaths at the planning district level, it is not technically feasible to produce reliable rates from age adjustment. The rates at the planning district level are crude mortality rates. Therefore, comparison of the rates among planning districts should be done with caution.

Map 13. Suicide Crude Death Rates by Planning Districts, Davidson County, TN, 1997



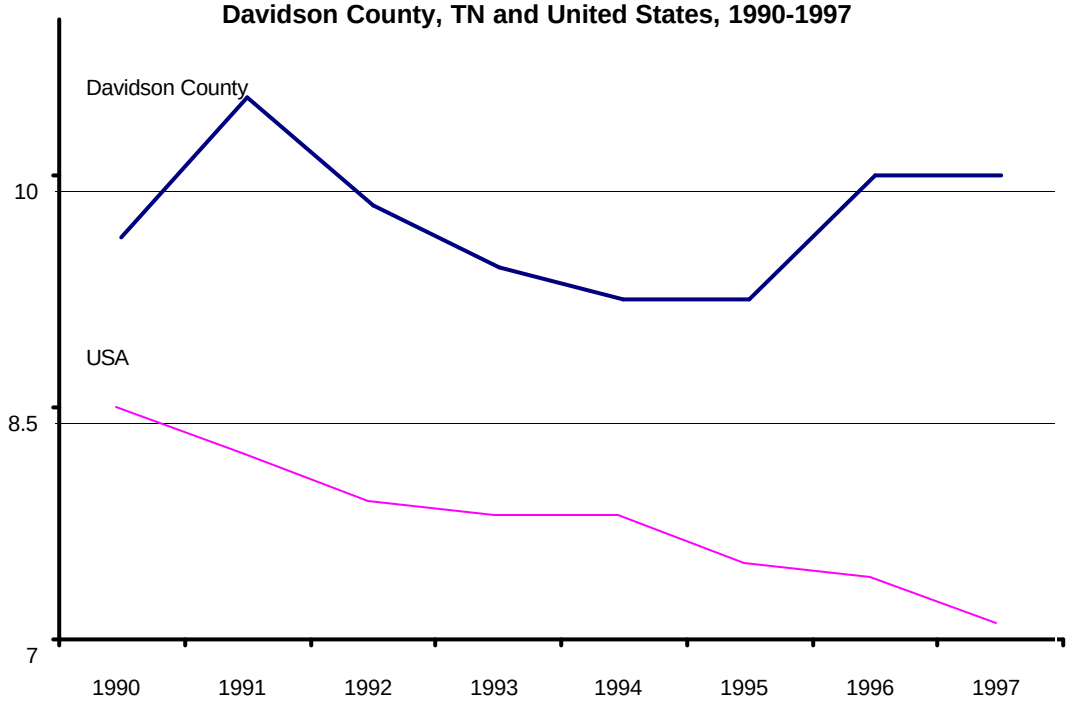
Number in parenthesis represents number of planning districts in this rate range

Chronic Liver Disease and Cirrhosis (ICD-9 571)

Chronic liver disease and cirrhosis serves as an umbrella term covering a variety of specific conditions. It includes alcoholic liver disease, chronic hepatitis, and biliary cirrhosis, as well as chronic non-alcoholic liver disease. It was the tenth leading cause of death in Davidson County, TN, State of Tennessee, and the United States in 1997. Chronic liver disease and cirrhosis is by far the most important nonmalignant cause of death among digestive diseases. (28)

In the United States, chronic alcoholism is the most common cause of chronic liver disease and cirrhosis. Cirrhosis may also result from chronic viral hepatitis (types B, C, and D). Liver injury that results in cirrhosis may be caused by a number of inherited diseases such as cystic fibrosis, alpha-1 antitrypsin deficiency, hemochromatosis, Wilson's disease, galactosemia, and glycogen storage diseases.(28)

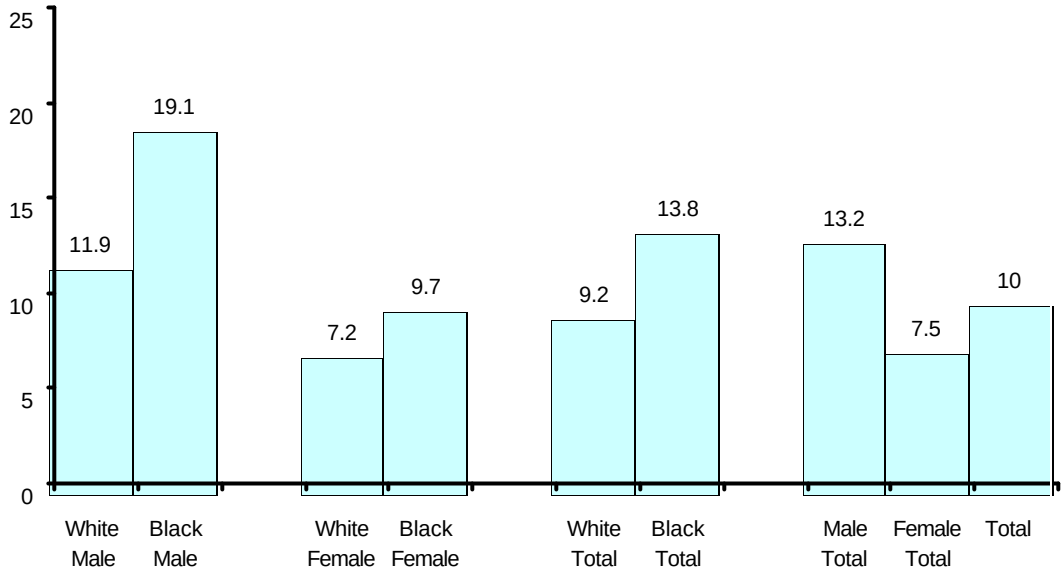
Figure 66, Chronic Liver Disease and Cirrhosis, Age-adjusted Rate/100,00 Persons, Davidson County, TN and United States, 1990-1997



The chronic liver disease and cirrhosis death rate in the United States decreased markedly between 1990 and 1997. From 1990 to 1997, the age adjusted chronic liver disease and cirrhosis death rate declined 14.0% in the United States. However, the rate increased 4.2% in Davidson County, TN. (Figure 56) As a result, the average age adjusted chronic liver disease and cirrhosis death rate was 22.9% higher than that of the United States.

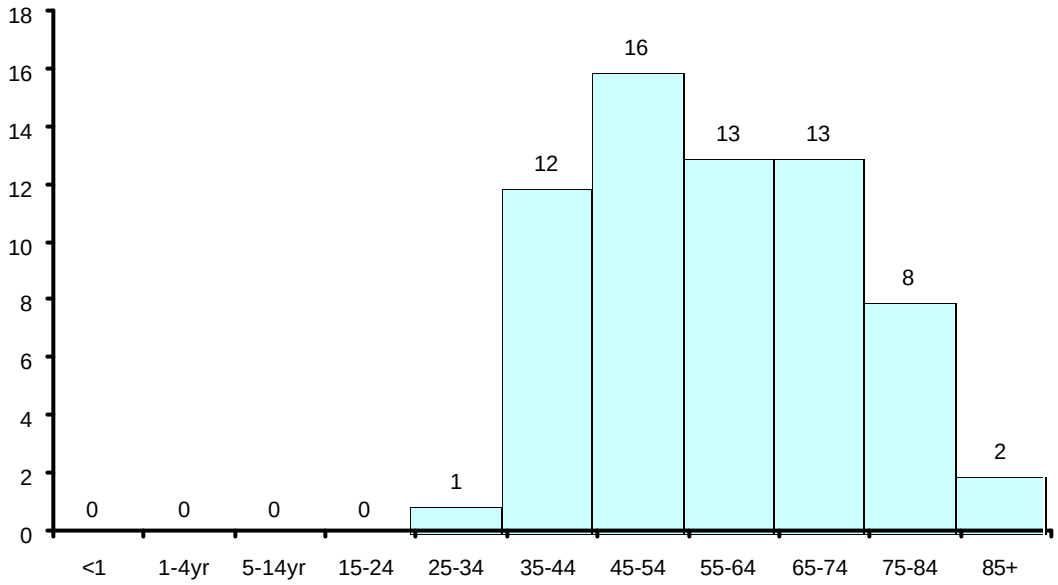
Figure 67 reveals that in 1997 the age adjusted chronic liver disease and cirrhosis mortality rate was 10.0 per 100,000 persons in Davidson County, TN. Overall, the rate was 76.0% higher for males than it was for females, and 50.0% higher for blacks than it was for whites. White females had the lowest CLDC mortality rate (7.2) whereas black males had the highest rate . (19.1)

Figure 67. Chronic Liver Disease and Cirrhosis, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997



A recent study suggested that hepatitis infection and alcohol abuse are the two critical components in liver disease deaths among high risk populations. (29)

Figure 68. Number of Chronic Liver Disease Cirrhosis Deaths by Age, Davidson County, TN, 1997

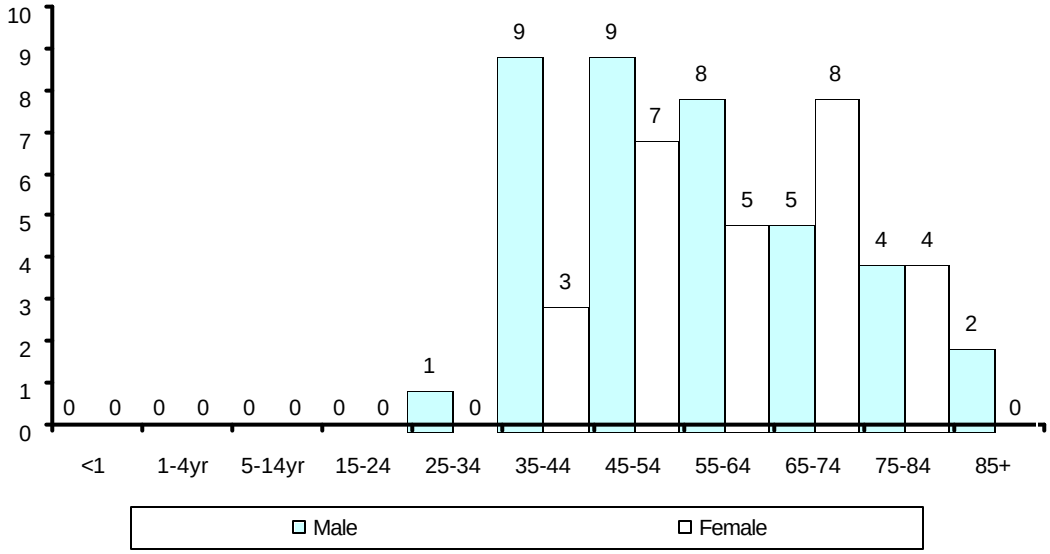


In 1997, chronic liver disease and cirrhosis mortality began to increase at age 35-44. All CLDC deaths occurred in persons who were age 25 and older in Davidson County, TN. Of these deaths, 63.1% occurred in persons who were between 35 and 64 years of age. (Figure 68)

In 1997, on average, five residents died of chronic liver disease and cirrhosis each month in Davidson County, TN. The same number of residents died of AIDS each month in this community.

Figure 69 shows that more males died of CLDC than did females, and 68% of male deaths occurred in persons who were between 35 to 64 years of age. In 1997, for males, CLDC deaths began to increase at 35-44 years of age whereas for females, it did not occur until 45-54 years of age.

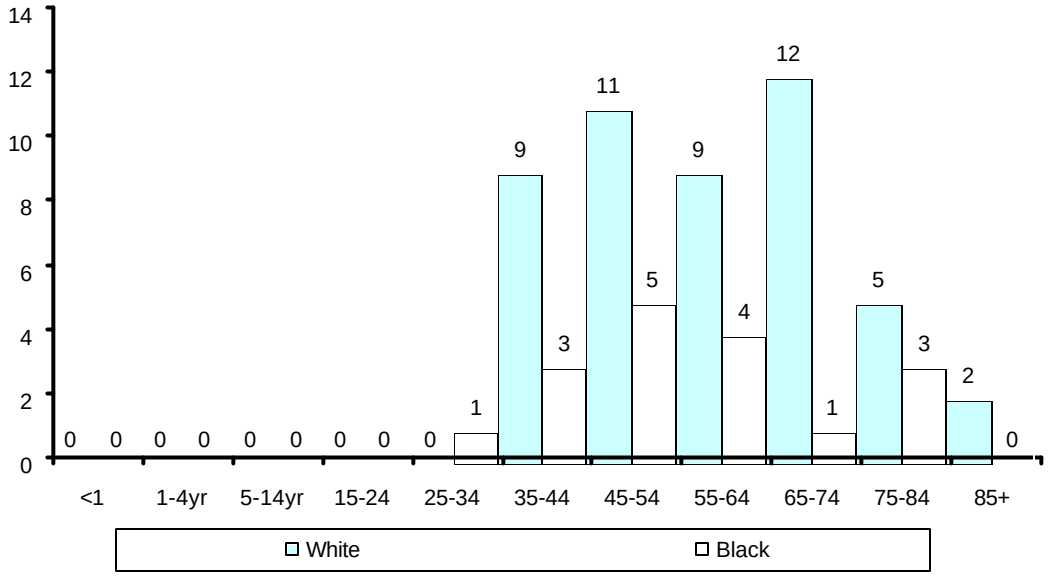
Figure 69. Number of Chronic Liver Disease and Cirrhosis Deaths by Age and Gender, Davidson County, TN, 1997



Chronic liver disease and cirrhosis is by far the most important nonmalignant cause of death among digestive diseases in the United States, accounting for 1.1 percent of deaths in 1997 (24,765 deaths). (28, 30)

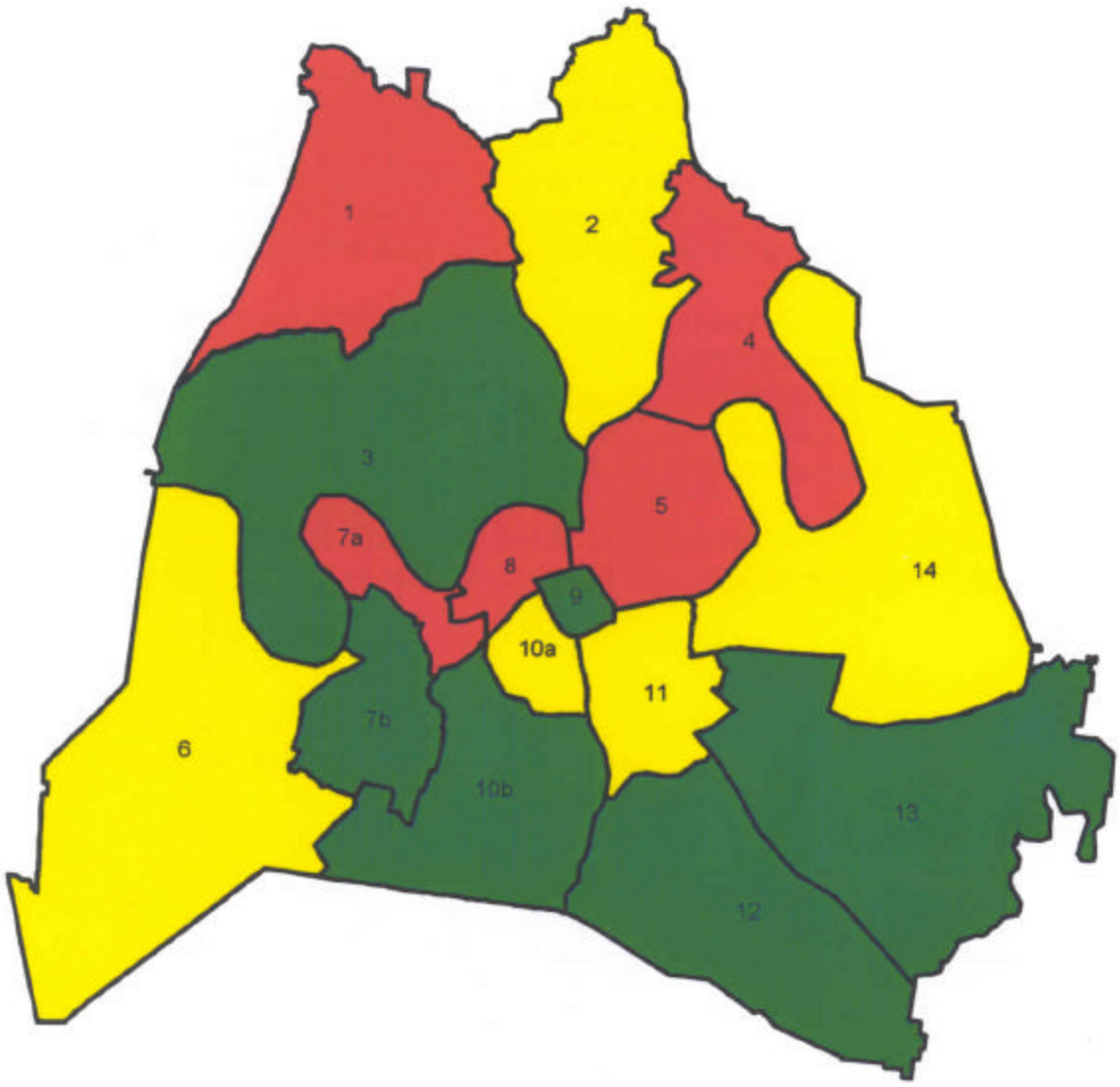
From Figure 70, one can see that in 1997, chronic liver disease and cirrhosis deaths was proportionately distributed among whites and blacks in Davidson County,TN.

Figure 70. Number of Chronic Liver Disease and Cirrhosis Deaths by Gender and Race, Davidson County, TN, 1997



Map 14 on the next page displays that the CLDC crude mortality rate was high in planning districts 1, 4, 5, 7a, and 8. Due to the small number of CLDC deaths at the planning district level, it is not technically feasible to produce reliable rates from the age adjustment. The rates at the planning district level are the crude mortality rates. Therefore, comparison of the rates among planning districts should be done with caution.

Map 14. Chronic Liver Disease and Cirrhosis (CLDC) Crude Death Rates by Planning Districts, Davidson County, TN, 1997



Number in parenthesis represents number of planning districts in this rate range

HIV/AIDS (ICD-9 042-044)

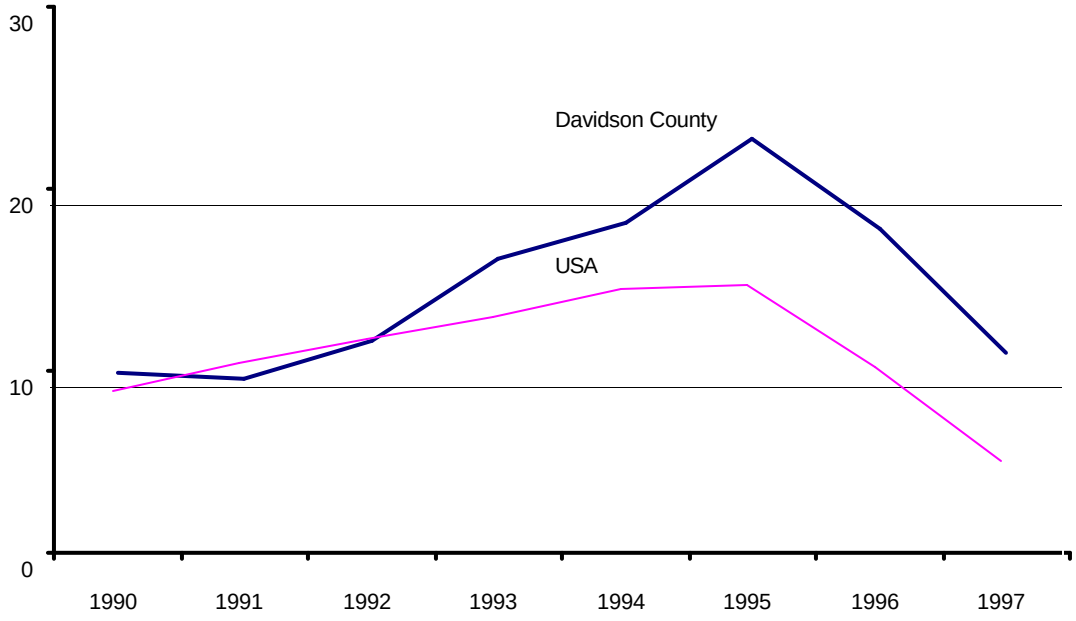
HIV (human immunodeficiency virus)

is the virus that causes acquired immunodeficiency syndrome (AIDS). This virus is passed from one person to another through blood-to-blood and sexual contact. In addition, infected pregnant women can pass HIV to their babies during pregnancy or delivery, as well as through breast-feeding. People with HIV have what is called an HIV infection. Most of these people will develop AIDS as a result of this infection. (31)

The number of patients with AIDS has increased markedly and steadily in the United States since the first cases were reported in 1981 through 1996. Declines in AIDS incidence and deaths, first reported in 1996, continued through 1997 and provided evidence of the widespread beneficial effects of new treatment regimens. (32)

In the United States, HIV/AIDS was the leading cause of death for blacks between 25-44 years of age in 1997. Racial minorities share a

Figure 71. HIV/AIDS, Age-adjusted Rate/100,000 Persons, Davidson County, TN and United States, 1997



disproportionate burden of the HIV/AIDS related mortality. In 1997, HIV/AIDS was the seventh leading cause of deaths for blacks and the tenth leading cause of deaths for Hispanics. (32, 33)

In Davidson County, TN, the age adjusted HIV/AIDS mortality rate was below the national level before1993. Since 1993, the HIV/AIDS death rate in this community has consistently exceeded the national rate. From1990 to 1997, the average age adjusted HIV/AIDS death rate in Davidson County, TN was approximately 33.6% higher than that in the United States. (Figure 71)

Figure 72. HIV/AIDS, Age-adjusted Rate/100,000 Persons by Gender and Race, Davidson County, TN, 1997

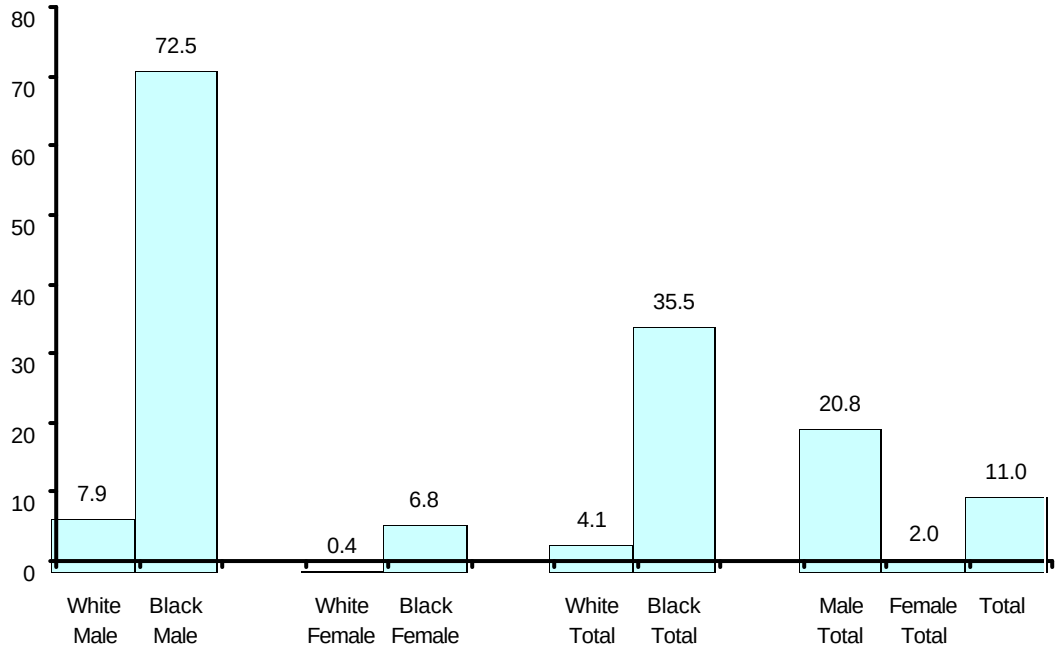
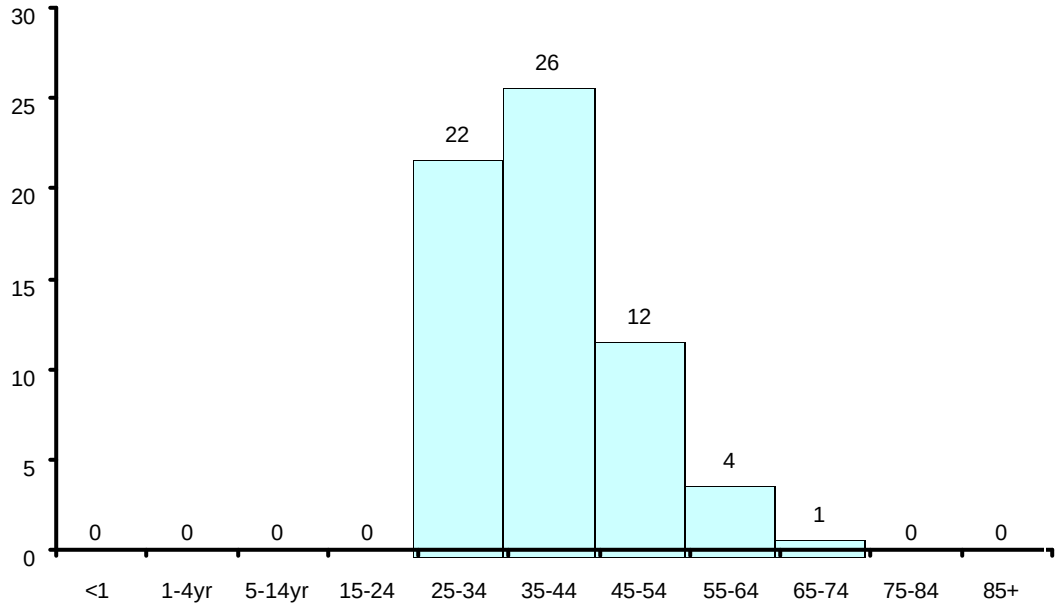


Figure 72 shows that in 1997 the age adjusted HIV/AIDS mortality rate was 11.0 per 100,000 persons. The rate was more than ten times higher in males than in females, and more than eight times higher in blacks than in whites. Black males had the highest HIV/AIDS mortality rates (72.5) while white females had the lowest rate. (0.4)

In 1997, HIV/AIDS deaths in Davidson County began to occur at 25-34 years of age, peaked at 35-44 years of age, and then began to decline. Almost all (98%) HIV/AIDS deaths occurred in persons who were age 25-64 in Davidson County, TN. (Figure 73)

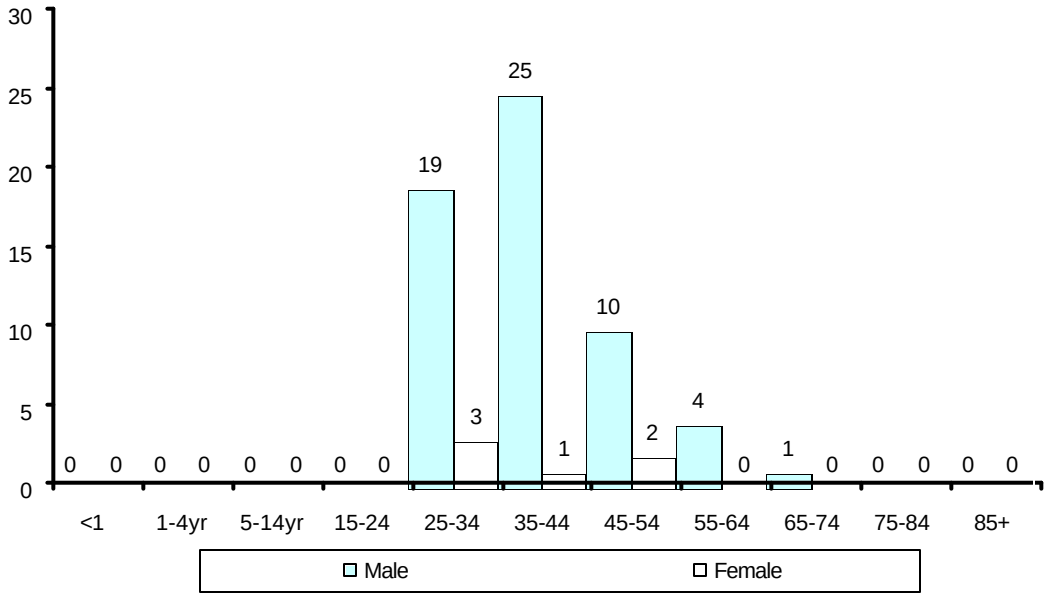
Figure 73. Number of HIV/AIDS Deaths by Age, Davidson County, TN, 1997



The Center for Disease Control and Prevention (CDC) estimates that between 650,000 and 900,000 people are living with HIV in the United States. Through June 1998, a total of 665,357 cases of AIDS had been reported to the CDC. (34)

Figure 74 clearly shows a male dominated HIV/AIDS mortality picture in Davidson County, TN. Ninety-one percent of all HIV/AIDS deaths occurred in males, and 98% of male deaths occurred in those 25-64 years of age.

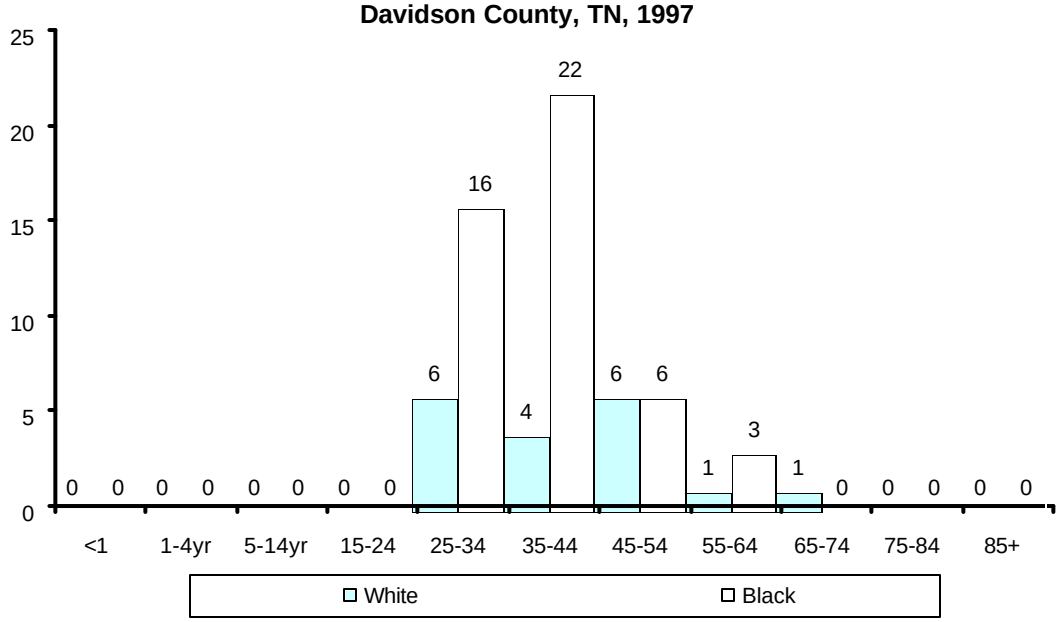
Figure 74. Number of HIV/AIDS Deaths by Age and Gender, Davidson County, TN, 1997



Based on estimates from the United Nations AIDS program, approximately 42.3 million people have been infected with HIV worldwide since the start of the global epidemic. Through December 1997, an estimated 11.7 million children and adults have died, and an estimated 30.6 million people are living with an HIV infection or AIDS. (34)

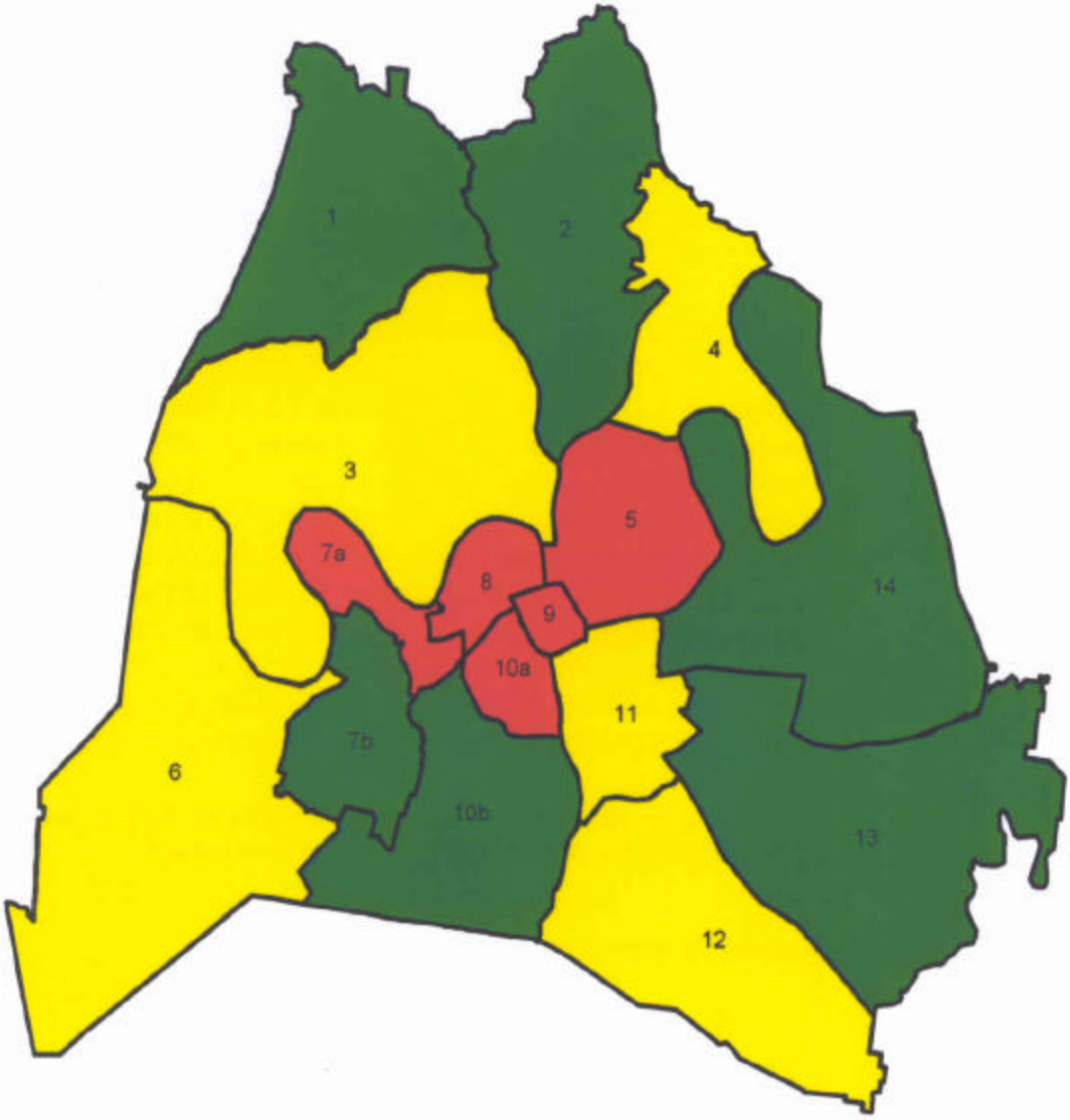
In 1997 HIV/AIDS deaths disproportionately occurred among blacks in Davidson County, TN. With 25% of the Davidson County population, blacks had 72% of HIV/AIDS deaths (47 out of 65). (Figure 75)

Figure 75. Number of HIV/AIDS Deaths by Age and Race, Davidson County, TN, 1997



Map 15 on the next page displays that the HIV/AIDS crude mortality rate was high in planning districts 5, 7a, 8, 9, and 10a. Due to the small number of HIV/AIDS deaths at the planning district level, it is not technically feasible to produce reliable rates from age adjustment. The rates at the planning district level are crude mortality rates. Therefore, comparison of the rates among planning districts should be with caution.

Map 15. HIV/AIDS Crude Death Rates by Planning Districts, Davidson County, TN, 1997



HIV/AIDS Crude Death Rate/100,000

- 19.8 to 62.8 (5)
- 5.3 to 19.8 (5)
- 0 to 5.3 (6)

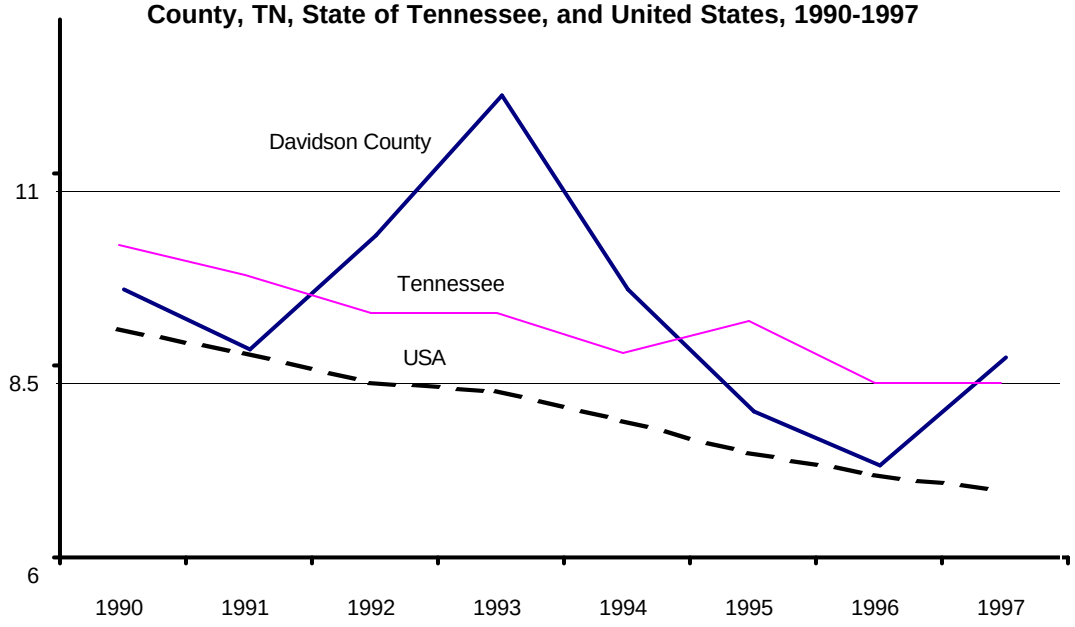
Number in parenthesis represents number of planning districts in this rate range

Infant Mortality

Infant mortality, defined as the death of an infant before his or her first birthday, is an important indicator of a community health, because it is associated with a variety of factors such as maternal health, quality of and access to health care, socioeconomic conditions, and public health practices. However, infant mortality only tells us about fatal diseases. It gives no information on the number of sick babies or the extent of diseases that do not necessarily lead to death during the first year. (3, 35)

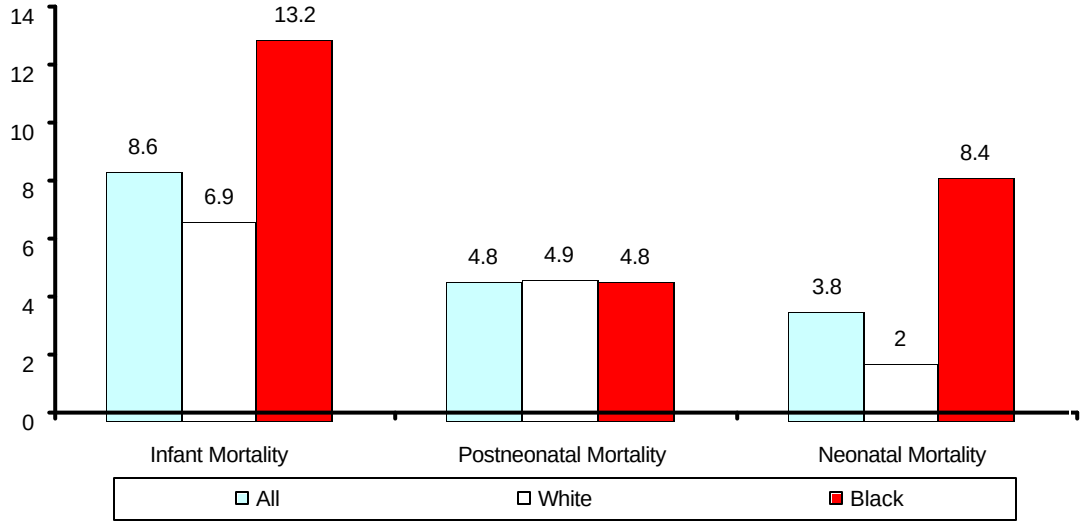
The U.S. infant mortality rate continued to decline in the 1990s. Between 1990 and 1997, infant mortality rate decreased 21.7% from 9.2 deaths per 1,000 live births in 1990 to 7.2 in 1997. A similar trend was observed in the State of Tennessee. However, infant mortality in Davidson County, TN demonstrated a different pattern. At the beginning of the decade, infant mortality in Davidson County, TN was below the state level and similar to the national rate. It increased sharply in 1992 and peaked in 1993 with a rate of 10.2 deaths per 1,000 live births. Since then, the rate has decreased gradually to a point below the national rate in 1996. It increased again in 1997 to a rate of 8.6, a 19.4% increase from 1996. (Figure 76)

Figure 76. Infant Mortality Rate/1,000 Live Births, Davidson County, TN, State of Tennessee, and United States, 1990-1997



From Figure 77, a racial disparity in the infant mortality rate can be easily noted. In 1997, the infant mortality rate among blacks was 91.3% higher than that in whites. This difference is most attributable to neonatal mortality, the death of live-born infants in less than 28 days of life. (Postneonatal mortality is death of a live-born infant after 28 days of life and before his or her first birthday.) Figure 77 shows that neonatal mortality in blacks was more than four times as higher as it was in whites.

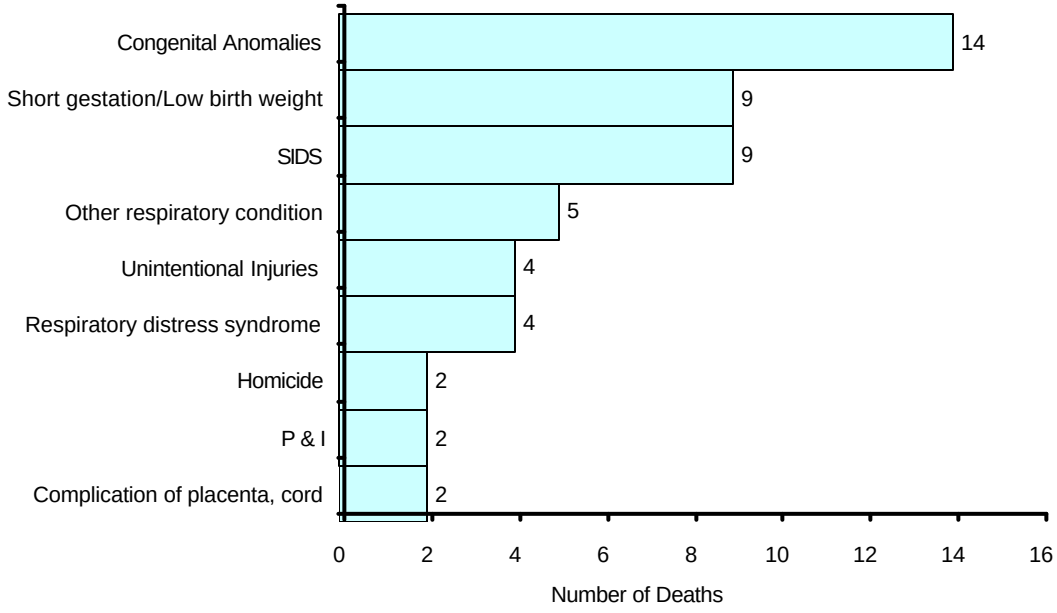
Figure 77. Infant Mortalityn Rate/1,000 Live Births, Neonatal Mortality Rate/1,000 Live Births, Postneonatal Mortality Rate/1,000 Live Births by Race, Davidson County, TN, 1997



On average, in 1997, a Davidson County infant (under age 1) died every five days. Many of these infant deaths were preventable.

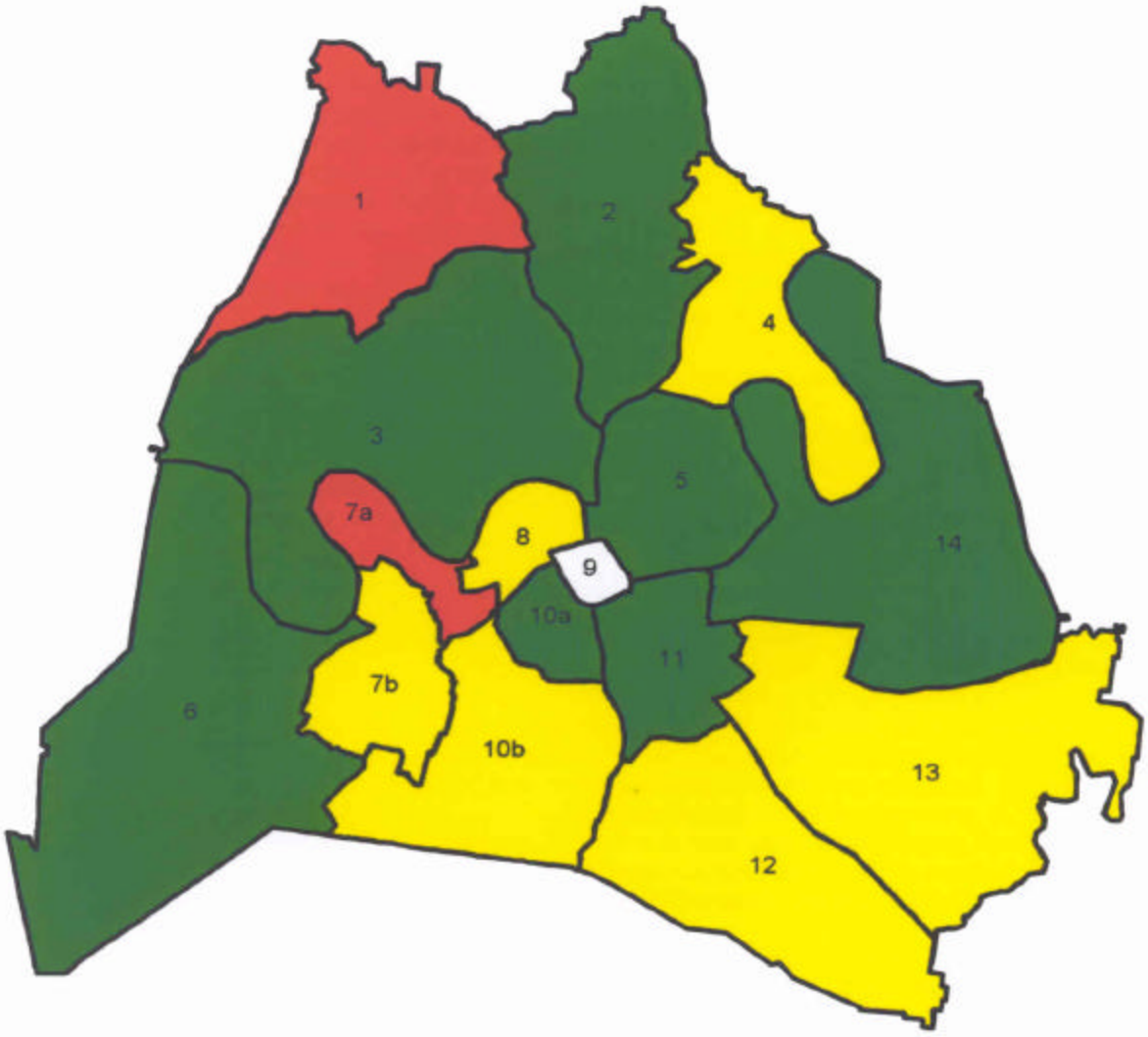
Figure 78 shows the five leading causes of infant mortality in Davidson County, TN. The leading causes of infant deaths was the same as that in the United States in 1997. It was congenital anomalies.

Figure 78. Five Leading Causes of Infant Mortality, Davidson County, TN, 1997



Map 16 on the next page displays the infant mortality rate per 1,000 live births at the planning district level. Planning districts 1 and 7a had the highest infant mortality rates in 1997 and planning districts 2, 3, 5, 6, 10a, 11 and 14 had infant mortality rates that were higher than the National Year 2000 Objective. Due to the small number of infant deaths at the planning district level, it is not technically feasible to produce reliable rates. Therefore, comparison of infant mortality rate among planning districts should be done with caution.

Map 16. Infant Mortality Rate/1,000 Live Births (IMR) by Planning Districts, Davidson County, TN, 1997



IMR	
13 to 20	(2)
7 to 13	(7)
1 to 7	(6)
0 to 0	(1)

Number in parenthesis represents number of planning districts in this range

Appendices

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Technical Notes

Data:

1997 mortality data was obtained from the Tennessee Department of Health (TDH), Office of Health Statistics and Information (615-741-5453). The data was compiled mainly from the original death certificates collected by the Vital Records Division of the Metropolitan Health Department of Nashville and Davidson County (MHD). Copies of death certificates occurring to Davidson County residents in other counties and states are forwarded to the Tennessee Department of Health and included in the Davidson County residents' mortality data set.

1990 population data was obtained from U.S. Bureau of the Census, Data User Service Division. 1991-1997 population estimates were obtained from TDH, Office of Health Statistics and Information. U. S. mortality data and the National year 2000 objective data were obtained from U.S. Department of Health and Human Services. Mortality data for the State of Tennessee, Shelby County, TN, and Knox County, TN were obtained from TDH and the web site: SPOT (Statistical Profiling of Tennessee). Please see references 2, 17, 24, 30, 33, 36-47 for more information.

Cause of Death:

For the purpose of mortality statistics, every death is attributed to one underlying condition, based on information reported on the death certificate. Death certificates are completed by the attending physicians, medical examiners, or coroners. The accuracy of data depends on the thoroughness of the individuals who complete the death certificates. In the case of sudden death, without autopsy, the physician must make an educated guess as to the cause of death. Another cause of inaccuracy is the determination of which disease to considered the underlying cause of death. Only the underlying death is coded according to the International Classification of Diseases, Ninth Revision (ICD-9). Secondary causes that may have significantly contributed to death are not recorded. With increased life expectancy, people are more likely to die of multiple causes; therefore, a conservative approach should be taken when interpreting mortality information.

Causes of death are ranked according to the number of deaths (not rates) assigned to the 72 rankable causes of death, HIV/AIDS, and Alzheimer's disease. Leading causes of death are determined by this cause-of-death ranking.

Death and Related Rates:

The 1997 crude death rate for Davidson County is calculated by dividing the number of deaths among Davidson County residents in 1997 by Davidson County's 1997 population estimates provided by TDH. (The population estimates from TDH were based on estimates prepared from the 1990 census by the Department of Sociology at the University of Tennessee in Knoxville and revised by the office of Health Statistics and Information of TDH. These revised population figures were based on updated county total estimates released by the Bureau of the Census.) The 1997 crude death rate for each planning district is calculated by dividing the number of deaths in each planning district in 1997 by the 1990 census population in each planning district.

A comparison of crude death rates can be misleading if the populations involved have very different age distributions. To remove the effect of age, the direct method of standardization was used to obtain the age-adjusted rate. The 1940 U.S. census population was used as the standard to allow comparison with national data, state data, other metropolitan data, as well as National Year 2000 Objectives. Female population was used to calculate breast cancer age specific death

Technical Notes(Continued)

rates and male population was used to calculate prostate cance age specific death rate during age adjustment process. All crude and age adjusted death rates presented in this report are rates per 100,000 population unless otherwise stated.

Race and gender specific age adjusted rates are reported for whites and blacks. Although these represent the largest race/gender subgroups in this community, the total number of deaths for a specific cause is sometimes small. Rates based on a small number of deaths will exhibit considerable random variation. Therefore, they should be interpreted with caution.

The 1997 infant mortality rate is calculated by dividing the number of infant deaths in 1997 by the number of live births reported in 1997. It is expressed as the number of infant deaths per 1,000 live births. The neonatal mortality rate is the number of deaths of children under 28 days of age, per 1,000 live births. The postneonatal mortality rate is the number of deaths of children that occur between 28 days and 365 days after birth, per 1,000 live births.

Years of Potential Life lost:

Years of potential life lost (YPLL) is a measure of premature death. YPLL is presented in this report for persons under 75 years of age because the average life expectancy in the United States is over 75 years. YPLL-75 is calculated using the following eight groups: under 1 year, 1-4 years, 15-24 years, 25-34 years, 35-44 years, 45-54 years, 55-64 years, and 65-74 years. The number of deaths for each age group is multiplied by the years of life lost, calculated as the difference between age 75 years and the midpoint of the age group. For the eight age groups, the midpoints are 0.5, 7.5, 19.5, 29.5, 39.5, 49.5, 59.5, and 69.5. For example, the death of a person 15-24 years of age counts as 55.5 years of life lost. Years of potential life lost is derived by summing years of life lost over all age groups. The total 1997 YPLL rate for each planning district is calculated by dividing the number of YPLL in each planning district in 1997 by the 1990 census population who were under 75 years of age in each planning district. It is expressed as the number of YPLL per 100,000 persons under 75 years of age.

Planning District

For public health planning purposes, Nashville has been divided into sixteen planning districts (PDs). Originally, there were fourteen planning districts. They were geographical subdivisions of the county adopted many years ago by the Metropolitan Planning Commission. Each planning district consists of one to sixteen 1990 census tracts. Due to noticeable changes in demographic factors in planning districts 7 and 10, it was decided in 1998 to divide planning districts 7 and 10 each into two sub-divisions, i.e., PD 7 south (7b), PD 7 north (7a), PD 10 south (10b), and PD 10 north (10a).

Residential Data

Data presented in this report is for Davidson County resident death only. Nonresident deaths were not included in this report even if the deaths occurred within Davidson County.

Software

Data was analyzed using The SAS System for Windows, Release 6.12, TS Level 0020 and Microsoft Excel 97, SR-2. Maps were produced using Mapinfo Professional Version 4.0. The layout and design of the report were prepared using Adobe PageMaker Version 6.5.

Glossary

Age Adjustment A procedure for adjusting rates, e.g. death rates, designed to minimize the effects of difference in age composition when comparing rates for different populations. Age-adjusted mortality is the rate after age adjustment.

AIDS Acquired ImmunoDeficiency Syndrome, a condition caused by HIV in which a person's defenses against infections are decreased.

Assessment A process whereby public health agencies identify health problems, health resources, evaluate their effectiveness, and present the results of these analyses to decision-makers and the public.

Chronic Liver Disease and Cirrhosis A variety of specific conditions including alcoholic liver disease, chronic hepatitis, billiary cirrhosis, and chronic nonalcoholic liver disease.

Congenital Anomalies Abnormalities present at birth.

Cancer A family of over 100 different diseases fundamentally characterized by uncontrolled cell growth in the body.

COPD Chronic Obstructive Pulmonary Disease, a variety of specific conditions including alcoholic liver disease, a process characterized by nonspecific changes in the lung parenchyma and bronchi that may lead to emphysema and airflow obstruction.

Crude Death Rate The number of deaths during a specific period divided by the number of persons at risk of dying during the period.

Diabetes A chronic, metabolic disease characterized by high blood glucose levels caused by a deficiency of insulin production, an impairment of insulin action, or both.

Health A state of complete physical, mental, and social well being and not merely the absence of disease or infirmity.

Heart Disease Refers to a groups of heart diseases, including coronary or ischemic heart disease, hypertensive heart disease, and rheumatic heart disease.

HIV Human Immunodeficiency Virus, the virus causes acquired immuno deficiency syndrome (AIDS).

Homicide Death caused by injuries inflicted by one person with intent to injure or kill another by any means. Homicide can be classified as criminal or noncriminal, which includes death caused by negligence and those committed in self-defense.

Glossary (Continued)

Infant Mortality	The death of an infant before his or her first birthday.
Mortality	Death, the irreversible cessation of all of the following: (1) total cerebral function, (2) spontaneous function of respiratory system, and (3) spontaneous function of the circulatory system.
P & I	Pneumonia & Influenza. Pneumonia is not a specific disease but a general term for several kinds of lung inflammation. It is usually caused by viruses or bacteria. When death results, it is often due to the complications of some other severe diseases. Influenza is an acute febrile respiratory illness caused by influenza virus A, B, or C. Although typically a mild or asymptomatic disease, influenza can be severe and even fatal, especially in old population.
Risk	The probability that an event will occur, e.g. that an individual will become ill or die within a stated period of time or age. Also, a non technical term encompassing a variety of measures of the probability of a generally unfavorable outcome.
SIDS	Sudden Infant Death Syndrome. The sudden death of a baby caused by unknown factors that have no specific symptoms.
Stroke	An interruption of the flow of blood to the brain. Stroke includes a group of diseases that affect the arteries of the central nervous system. Stroke results when an artery in the brain is either ruptured or clogged by a blood clot (thrombus), a wandering clot (embolus), or atherosclerotic plaque. Nerve cells in the affected part of brain die within minutes, often resulting in neurologic impairment.
Suicide	Deaths as a result of violence directed against self.
Unintentional Injuries	Accidents and adverse effects. Refers to any unintentional damage to the body resulting from acute exposure to thermal, mechanical, electrical, or chemical energy or from the absence of such essentials as heat or oxygen.
YPLL	Years of Potential Life Lost. The number of years of life lost as the result of a death, before the age of 75.

Data Tables (Page number is in parenthesis)